

MCMS

Algebra Skills Assessment Test
Practice Workbook

Answers are provided
(Delete as desired)

Skill Assessment Test Practice Work

Key # _____

- ① • Place Value
 - ② • Comparing Fractions/Decimals ($>$, $<$, $=$)
 - ③ • Rounding
 - ④ • Prime/Composite #s ; Factors and Multiples
 - ⑤ • Ordering Decimals/Fractions (least to greatest)
 - ⑥ • Improper Fractions/Mixed Numbers
 - ⑦ • Converting Fractions, Decimals, and Percent
 - ⑧ • Order of Operations
 - ⑨ • Decimals ($+$, $-$, $\times$, $\div$)
 - ⑩ • Fractions ($+$, $-$, $\times$, $\div$)
 - ⑪ • Percent (write equation and solve)
 - ⑫ • Integers ($+$, $-$, $\times$, $\div$) ; ordering integers
 - ⑬ • Combining Like Terms
 - ⑭ • Equations
 - ⑮ • Exponents
 - ⑯ • Graphing
 - ⑰ • Probability
 - ⑱ • Geometry (perimeter, area, surface area, volume, degrees)
-

Write each number as a decimal.

1. $\frac{3}{10}$ 0.3

2. $\frac{47}{100}$ 0.47

3. $\frac{935}{10,000}$ 0.0935

4. Thirty-five hundredths

0.35

5. Two hundred sixty-eight and nine tenths

268.9

6. Four and six hundred thousandths

4.600

7. Two thousand forty and seventy-two hundredths

2,040.72

8. Fifty and three hundred forty-two thousandths

50.342

Write what the 3 means in each number.

9. 54.347 3 Tenths

10. 436.11 3 Tens

11. 84.136 3 Hundredths

12. 7.043 3 Thousandths

Write each decimal in words.

13. 72.7 Seventy-two and seven tenths

14. 32.9 Thirty-two and nine tenths

15. 56.936 Fifty-six and nine hundred

thirty-six thousandths

16. 67.8379 Sixty-seven and eight thousand

three hundred seventy-nine ten-thousandths

17. 407.06 Four hundred seven and six hundredths

18. 48.5 Forty-eight and five tenths

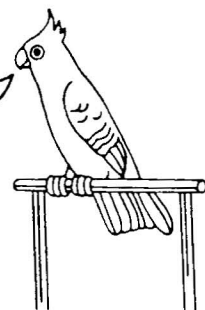
What does the 9 mean in 35.6092?

millions	
hundred-thousands	
ten-thousands	
thousands	
hundreds	
tens	3
ones	5
tenths	6
hundredths	0
thousandths	9
ten-thousandths	2
hundred-thousandths	
millionths	

9 is in the thousandths place.

The 9 means 9 thousandths.

The word "and" helps
you place the
decimal point.



The decimal 35.6092 is read, thirty-five and six thousand ninety-two ten-thousandths.

Tell what the 6 means in each number.

1. 3.56 6 hundredths
2. 14.63 6 tenths
3. 27.046 6 thousandths
4. 6.418 6 ones
5. 75.23164 6 ten-thousandths
6. 0.00186 6 hundred-thousandths

Write each number as a decimal.

7. Sixty-two thousandths 0.062
8. Seven tenths 0.7
9. Two and four tenths 2.4
10. Three thousandths 0.003
11. Six and twelve hundredths 6.12
12. Eighty-three hundredths 0.83
13. Five and thirty-four thousandths 5.034
14. Seven and four ten-thousandths 7.0004
15. Ninety-nine and ninety-nine thousandths 99.099

pg. #2

Maintenance

Use $<$, $>$, or $=$ to compare the numbers.

1. $0.28 < 0.43$

2. $0.5 < 0.7$

3. $0.49 < 0.71$

4. $0.85 < 0.9$

5. $0.1 = 0.10$

6. $0.89 < 0.90$

7. $0.2 > 0.124$

8. $1.40 < 2.0$

9. $2.4 > 2.39$

10. $0.53 = 0.5300$

11. $0.732 < 0.81$

12. $0.12 > 0.085$

13. $0.962 < 1.0$

14. $0.543 > 0.542$

15. $0.777 < 0.8$

16. $0.40 = 0.4$

17. $0.075 < 0.1$

Write the numbers in order from least to greatest.

18. 0.5 0.62 0.457

0.457 0.5 0.62

19. 0.4 0.222 0.39

0.222 0.39 0.4

20. 0.542 0.499 0.5419

0.499 0.5419 0.542

21. 1.2 0.99 0.887

0.887 0.99 1.2

22. 0.8 0.276 0.35 0.801 0.2755 0.1

0.1 0.2755 0.276 0.35 0.8 0.801

Write an equal decimal in hundredths.

1. 6.3 6.30

2. 38 38.00

3. 72.9 72.90

4. 8.600 8.60

5. 15 15.00

6. 9.980 9.98

Write an equal decimal in thousandths.

7. 4.62 4.620

8. 2.48 2.480

9. 6.8310 6.831

10. 2.63 2.630

11. 0.27 0.270

12. 35 35.000

Use $<$, $>$, or $=$ to compare the numbers.

13. $0.35 > 0.22$

14. $3.0411 > 1.040$

15. $8.48 > 5.493$

16. $0.5462 < 0.54621$

17. $69.480 = 69.48$

18. $11.483 < 11.485$

19. $14.602 < 14.620$

20. $7.638 > 7.6371$

Write the numbers in order from least to greatest.

21. 9.13 9.31 9.00 9.312

9.00, 9.13, 9.31, 9.312

22. 3.623 3.832 3.660

3.623, 3.660, 3.832

23. 6.24 7.12 6.42 5.90

5.90, 6.24, 6.42, 7.12

24. 5.613 5.512 5.891

5.512, 5.613, 5.891

25. 8.313 8.333 8.036 8.3

8.036, 8.3, 8.313, 8.333

26. 0.7 0.8 0.77 0.08

0.08, 0.7, 0.77, 0.8

27. 4.86 4.759 14.96

4.759, 4.86, 14.96

Pg #4

Maintenance

Compare these fractions. Use $<$, $>$, or $=$.

1. $\frac{2}{3} > \frac{1}{3}$

2. $\frac{5}{7} < \frac{6}{7}$

3. $\frac{8}{9} > \frac{1}{9}$

4. $\frac{3}{4} > \frac{2}{3}$

5. $\frac{8}{12} = \frac{2}{3}$

6. $\frac{2}{5} < \frac{3}{7}$

7. $\frac{4}{5} = \frac{8}{10}$

8. $\frac{9}{11} > \frac{7}{10}$

9. $\frac{5}{16} < \frac{1}{3}$

10. $\frac{6}{25} > \frac{1}{5}$

11. $\frac{3}{30} = \frac{1}{10}$

12. $\frac{4}{17} < \frac{2}{5}$

13. $\frac{7}{50} < \frac{2}{9}$

14. $\frac{7}{8} > \frac{9}{11}$

15. $\frac{8}{11} < \frac{7}{9}$

List the fractions in order from least to greatest.

16. $\frac{1}{5}, \frac{1}{3}, \frac{1}{4}, \underline{\frac{1}{5}}, \underline{\frac{1}{4}}, \underline{\frac{1}{3}}$

17. $\frac{2}{3}, \frac{5}{6}, \frac{3}{4}, \underline{\frac{2}{3}}, \underline{\frac{3}{4}}, \underline{\frac{5}{6}}$

18. $\frac{4}{5}, \frac{1}{2}, \frac{8}{9}, \underline{\frac{1}{2}}, \underline{\frac{4}{5}}, \underline{\frac{8}{9}}$

19. $\frac{4}{7}, \frac{1}{2}, \frac{8}{11}, \underline{\frac{1}{2}}, \underline{\frac{4}{7}}, \underline{\frac{8}{11}}$

Comparing Real Numbers

$$4.66 \quad \underline{\hspace{1cm}} \quad 4.78$$

$$4\frac{1}{2} \quad \underline{\hspace{1cm}} \quad 4.78$$

$$4.66 < 4.78$$

$$4.50 < 4.78$$

Use $<$, $>$, or $=$ to make each a true sentence.

$$1. \quad 2.5 \quad \underline{=} \quad 2\frac{1}{2}$$

$$6. \quad -3 \quad \underline{<} \quad -\overline{3}$$

$$2. \quad 1.078 \quad \underline{<} \quad 1.78$$

$$7. \quad -9\frac{36}{48} \quad \underline{>} \quad -9.77$$

$$3. \quad 13.26 \quad \underline{<} \quad 132.6$$

$$8. \quad 12\frac{5}{8} \quad \underline{>} \quad 12.6$$

$$4. \quad 983.21 \quad \underline{<} \quad 7551.7$$

$$9. \quad 1.5 \quad \underline{<} \quad 1\frac{2}{3}$$

$$5. \quad 232.33 \quad \underline{>} \quad 23.233$$

$$10. \quad 3.2 \quad \underline{=} \quad 3\frac{1}{5}$$

Write in ascending order.

$$2\frac{1}{2}, 2\frac{3}{5}, 2.4 \quad 2.4, 2.5, 2.6 \quad 2.4, 2\frac{1}{2}, 2\frac{3}{5}$$

Rewrite the fractions as decimals.

$$1. \quad 2.51, 2.511, 2.5111$$

$$10.781, 10.78, 10.710$$

$$2. \quad -3\frac{1}{5}, -3\frac{2}{3}, -3\frac{5}{7}$$

$$6. \quad 10.78, 10.781, 10.710$$

$$3. \quad -2\frac{1}{4}, 2\frac{7}{8}, 2\frac{3}{9}$$

$$7. \quad 5\frac{1}{2}, 5\frac{1}{3}, 5\frac{3}{4} \quad 5\frac{1}{2}, 5\frac{1}{3}, 5\frac{3}{4}$$

$$4. \quad 4\frac{2}{3}, -4\frac{6}{9}, 4.34$$

$$8. \quad -1\frac{4}{5}, -1\frac{9}{10}, -1\frac{7}{8} \quad -1\frac{4}{5}, -1\frac{9}{10}, -1\frac{7}{8}$$

$$5. \quad -6\frac{1}{5}, -6.66, -6\frac{4}{5}$$

$$9. \quad 7\frac{2}{3}, 7.45, 7\frac{3}{5} \quad 7\frac{2}{3}, 7\frac{3}{5}, 7.45$$

A. Round 42.85 to the nearest one.

Touch the digit in the ones place with your pencil.

42. 8 5

43

Yes. 42.85 rounds up to 43.

Circle the digit to the right. Is it 5 or greater?

B. Round 3.674 to the nearest hundredth.

3.674

Touch the digit in the hundredths place.

3.67 4

Circle the digit to the right. Is it 5 or greater?

3.67

No. 3.674 rounds down to 3.67.

Round to the nearest one.

1. 1.7 2

2. 2.3 2

3. 0.872 1

Round to the nearest tenth.

4. 43.62 43.6

5. 7.48 7.5

6. 6.75 6.8

7. 0.077 0.1

8. 2.815 2.8

9. 0.8021 0.8

Round to the nearest hundredth.

10. 8.251 8.25

11. 3.542 3.54

12. 0.0078 0.01

13. 2.845 2.85

14. 5.4564 5.46

15. 0.099 0.10

Round to the nearest thousandth.

16. 5.2816 5.282

17. 2.1855 2.186

18. 0.0034 0.003

Round to the nearest hundred.

1. 307 300 2. 422 400 3. 2,650 2,700
 4. 8,849 8,800 5. 2,659 2,700 6. 18,098 18,100

Round to the nearest ten-thousand.

7. 6,013 10,000 8. 29,605 30,000 9. 13,099 10,000
 10. 261,278 260,000 11. 984,372 980,000

Round to the nearest million.

12. 14,683,019 15,000,000 13. 83,426,999 83,000,000
 14. 1,623,014 2,000,000 15. 8,438,996 8,000,000

Write each number in expanded form.

16. 113,807 $100,000 + 10,000 + 3,000 + 800 + 7$
 17. 67,415 $60,000 + 7,000 + 400 + 10 + 5$
 18. 2,564,291 $2,000,000 + 500,000 + 60,000 + 4,000 + 200 + 90 + 1$

Complete the table.

Number	Round to the nearest		
	Hundred-Thousand	Ten-Thousand	Thousand
4,328,116	4,300,000	4,330,000	4,328,000
1,623,094	1,600,000	1,620,000	1,623,000

Maintenance

Round to the nearest hundred.

1. 859 900

2. 4,839 4,800

3. 52,087 52,100

4. 26,439 26,400

5. 123,000 123,000

6. 495,398 495,400

Round to the nearest thousand.

7. 859 1,000

8. 4,339 4,000

9. 52,087 52,000

10. 26,439 26,000

11. 123,000 123,000

12. 495,398 495,000

Round to the nearest million.

13. 2,459,999 2,000,000

14. 53,800,000 54,000,000

15. 6,594,287 7,000,000

16. 1,499,999 1,000,000

17. 4,000,000 4,000,000

18. 9,695,000 10,000,000

Estimate by rounding the numbers to the same place.

19. $489 + 677$ 1,200

20. $8,888 + 6,953$ 16,000

21. $395 + 578 + 979$ 2,000

22. $8,869 - 2,985$ 6,000

23. $45,234 - 4,931$ 40,000

24. $52,147 - 1,953$ 50,000

Round to the nearest one.

1. 5.439 5 2. 63.83 64 3. 8.435 8

Round to the nearest tenth.

4. 0.234 .2 5. 6.057 6.1 6. 73.943 73.9

Round to the nearest hundredth.

7. 2.256 2.26 8. 0.992 .99 9. 1.008 1.01

Round to the nearest thousandth.

10. 9.0085 9.009 11. 0.69312 .693 12. 8.3847 8.385

Round so that only one digit is not zero.

13. 2.007 2 14. 0.065 .07 15. 35.06 40

Who will win the race? Round the numbers in Exercises 16 to 21 to the nearest thousandth. Shade each answer on the track. The winner will be the first to have all answers shaded.

16. 2.6048 2.605 17. 38.0021 38.002 18. 17.3333 17.333
 19. 0.6666 .667 20. 8.6946 8.695 21. 2.6056 2.606

Sinking Sub	<u>2.605</u>	2.999	17.344 Finish
Slippery Slime	<u>17.333</u>	<u>0.667</u>	0.666 Finish
Sizzle Shoes	<u>38.002</u>	<u>8.695</u>	<u>2.606 Finish</u>

Rounding Decimals

Round 10.943 to the nearest tenth.
 $10.9\textcircled{4}3 / 4 < 5$ therefore $10.943 = 10.9$

Round 32.78 to the nearest whole number
 $32.78 / 32.\textcircled{7}8 / 7 \geq 5$ therefore $32.78 = 33$

Round to the nearest whole number.

1. $42.675 = 43$ 2. $29.78 = 30$ 3. $34.87 = 35$ 4. $21.098 = 21$
 5. $15.91 = 16$ 6. $78.412 = 78$ 7. $7.8346 = 8$ 8. $54.927 = 55$
 9. $2.72 = 3$ 10. $54.909 = 55$ 11. $1.19 = 1$ 12. $4.98 = 5$

Round to the nearest tenth.

1. $33.897 = 33.9$ 2. $121.343 = 121.3$ 3. $32.777 = 32.8$ 4. $5.345 = 5.3$
 5. $1.908 = 1.9$ 6. $341.08 = 341.1$ 7. $1.23 = 1.2$ 8. $1.6578 = 1.7$
 9. $3.869 = 3.9$ 10. $41.564 = 41.6$ 11. $654.34 = 654.3$ 12. $111.111 = 111.1$

Round to the nearest hundredth.

1. 212.658
 212.66
 2. 21.569
 21.57
 3. 2.6354
 2.64
 4. 241.560
 241.56
 5. 7.34587
 7.35
 6. 218.453
 218.45
 7. 12.1212
 12.12
 8. 430.234
 430.23
 9. 12.7689
 12.77
 10. 129.404
 129.40
 11. 6.435
 6.44
 12. 9.9999
 10.00

Circle the prime numbers.

(3) 8 16 (19) 22

$$3 \rightarrow 3 \times 1$$

$$8 \rightarrow 8 \times 1 \text{ and } 4 \times 2$$

$$16 \rightarrow 16 \times 1, 8 \times 2, \text{ and } 4 \times 4$$

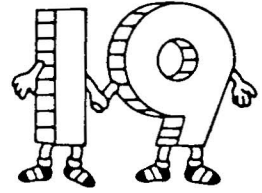
$$19 \rightarrow 19 \times 1$$

$$22 \rightarrow 22 \times 1 \text{ and } 11 \times 2$$

I am a prime number.
I have only one
pair of whole-
number factors:
3 and 1.



I am a prime
number.
My only
whole-number
factors are
19 and 1.



Remember: All other numbers (that are not prime) are composite, EXCEPT 0 and 1 which are neither.

Circle the prime numbers in each row.

All answers are in the box.

1. 1 4 (7) 10 (13) 16 (19)

2. (2) (5) 8 (11) 14 (17) 20

3. 4 (11) 18 25 32 39 46

4. (3) 14 25 36 (47) 58 69

5. 1 8 15 22 (29) 36 (43)

6. (11) 21 (31) (41) 51 (61) (71)

7. (3) (7) (11) 15 (19) (23) 27

8. (5) (7) 9 (11) (13) 15 (17)

41 23
37 **43**
 61 7
 5
 19
 2 13
47 71
 31 11
 29 **17**
 3

List the common factors of each pair of numbers.

1. 8 and 24

1, 2, 4, 8

2. 10 and 16

1, 2

3. 5 and 15

1, 5

4. 2 and 7

1

5. 15 and 24

1, 3

6. 17 and 34

1, 17

7. 36 and 42

1, 2, 3, 6

8. 12 and 28

1, 2, 4

9. 25 and 50

1, 5, 25

10. 99 and 9

1, 3, 9

Find the GCF of each pair of numbers.

11. 10 and 15

5

12. 14 and 28

14

13. 15 and 18

3

14. 81 and 27

27

15. 63 and 42

21

16. 28 and 70

14

17. 28 and 42

14

18. 42 and 44

2

19. 21 and 24

3

20. 56 and 16

8

21. 14 and 70

14

22. 56 and 168

56

23. 108 and 144

36

24. 15 and 60

15

25. 45 and 180

45

26. 153 and 270

9

27. 162 and 36

18

28. 36 and 54

18

Circle the GCF.

29. 18 and 24

2

3

6

30. 60 and 72

4

6

12

31. 28 and 42

4

7

14

32. 90 and 36

9

12

18

33. 20 and 40

10

20

40

34. 51 and 87

3

6

9

35. 36 and 56

4

9

12

36. 72 and 144

12

36

72

List the first four multiples of each number.

- | | | | |
|-------|------------------------------------|--------|-------------------------|
| 1. 4 | <u>4, 8, 16, 12, 16</u> | 2. 7 | <u>7, 14, 21, 28</u> |
| 3. 14 | <u>14, 28, 42, 56</u> | 4. 24 | <u>24, 48, 72, 96</u> |
| 5. 15 | <u>15, 30, 45, 60</u> | 6. 21 | <u>21, 42, 63, 84</u> |
| 7. 40 | <u>40, 80, 120, 160</u> | 8. 35 | <u>35, 70, 105, 140</u> |
| 9. 22 | <u>22, 44, 66, 88</u> | 10. 19 | <u>19, 38, 57, 76</u> |

For each pair of numbers, list the first three common multiples.

- | | | | |
|---------------|----------------------|--------------|-------------------|
| 11. 5 and 10 | <u>10, 20, 30</u> | 12. 8 and 12 | <u>24, 48, 72</u> |
| 13. 4 and 5 | <u>20, 40, 60</u> | 14. 7 and 14 | <u>14, 28, 42</u> |
| 15. 10 and 11 | <u>110, 220, 330</u> | | |
| 16. 32 and 5 | <u>160, 320, 480</u> | | |
| 17. 27 and 10 | <u>270, 540, 810</u> | | |
| 18. 16 and 3 | <u>48, 96, 144</u> | | |

Use prime factorization to find the LCM of each pair of numbers.

- | | | | |
|----------------|--------------|---------------|------------|
| 19. 48 and 100 | <u>1,200</u> | 20. 52 and 40 | <u>520</u> |
| 21. 48 and 52 | <u>624</u> | 22. 25 and 15 | <u>75</u> |
| 23. 21 and 8 | <u>168</u> | 24. 33 and 55 | <u>165</u> |
| 25. 35 and 14 | <u>70</u> | 26. 19 and 24 | <u>456</u> |

List the first six multiples for each number.

1. 2 2, 4, 6, 8, 10, 12

2. 3 3, 6, 9, 12, 15, 18

3. 4 4, 8, 12, 16, 20, 24

4. 5 5, 10, 15, 20, 25, 30

5. 6 6, 12, 18, 24, 30, 36

6. 7 7, 14, 21, 28, 35, 42

7. 8 8, 16, 24, 32, 40, 48

8. 9 9, 18, 27, 36, 45, 54

9. 10 10, 20, 30, 40, 50, 60

10. 11 11, 22, 33, 44, 55, 66

11. 12 12, 24, 36, 48, 60, 72

12. 15 15, 30, 45, 60, 75, 90

Use the lists above to find the common multiples for each pair of numbers below. Then give the least common multiple (LCM).

13. 2, 3 6, 12

LCM 6

14. 2, 6 6, 12

LCM 6

15. 4, 5 20

LCM 20

16. 4, 12 12, 24

LCM 12

17. 5, 10 10, 20, 30

LCM 10

18. 8, 12 24, 48

LCM 24

19. 6, 15 30

LCM 30

20. 10, 15 30, 60

LCM 30

Maintenance

Circle the common factors of each pair of numbers.

1. 12 and 8 1 2 3 4 8 12
2. 20 and 15 1 2 3 4 5 10 15 20
3. 18 and 9 1 2 3 6 9 18
4. 36 and 24 1 2 3 4 6 8 9 12
5. 9 and 16 1 2 3 4 9
6. 40 and 25 1 2 4 5 8 25
7. 75 and 100 1 2 3 4 5 15 25 75
8. 22 and 33 1 2 3 11 22

What is the greatest common factor of

9. 12 and 8? 4
10. 20 and 15? 5
11. 18 and 9? 9
12. 36 and 24? 12
13. 9 and 16? 1
14. 40 and 25? 5
15. 75 and 100? 25
16. 22 and 33? 11

When is a piece of wood like a king?

- To find out, cross out each box that contains a prime number. The remaining letters will spell the answer.



4 W	5 D	20 H	10 E	18 N	2 B	16 I	12 T	19 H	20 I	14 S
17 K	1 A	13 L	6 R	9 U	0 L	37 A	8 E	18 R	3 E	7 E

If the number below is a prime number, write *prime*. If it is composite, write it as the product of two whole numbers that are less than itself.

Answers will vary for exercises 3, 7, and 9

- | | | |
|-----------------------|-----------------------|----------------------|
| 2. 21 <u>3 × 7</u> | 3. 59 <u>Prime</u> | 4. 91 <u>13 × 7</u> |
| 5. 72 <u>9 × 8</u> | 6. 107 <u>Prime</u> | 7. 54 <u>6 × 9</u> |
| 8. 121 <u>11 × 11</u> | 9. 630 <u>63 × 10</u> | 10. 103 <u>Prime</u> |

List all the factors of each number.

- | | |
|---------------------------|----------------------------------|
| 11. 15 <u>1, 3, 5, 15</u> | 12. 63 <u>1, 3, 7, 9, 21, 63</u> |
| 13. 17 <u>1, 17</u> | 14. 45 <u>1, 3, 5, 9, 15, 45</u> |

- In the Number Find on the right, find six prime numbers that are greater than 10 but less than 100.

Number Find
(horizontal and vertical)

3	2	9	9	0	6	1
3	3	4	5	3	4	5
7	4	5	5	4	6	9

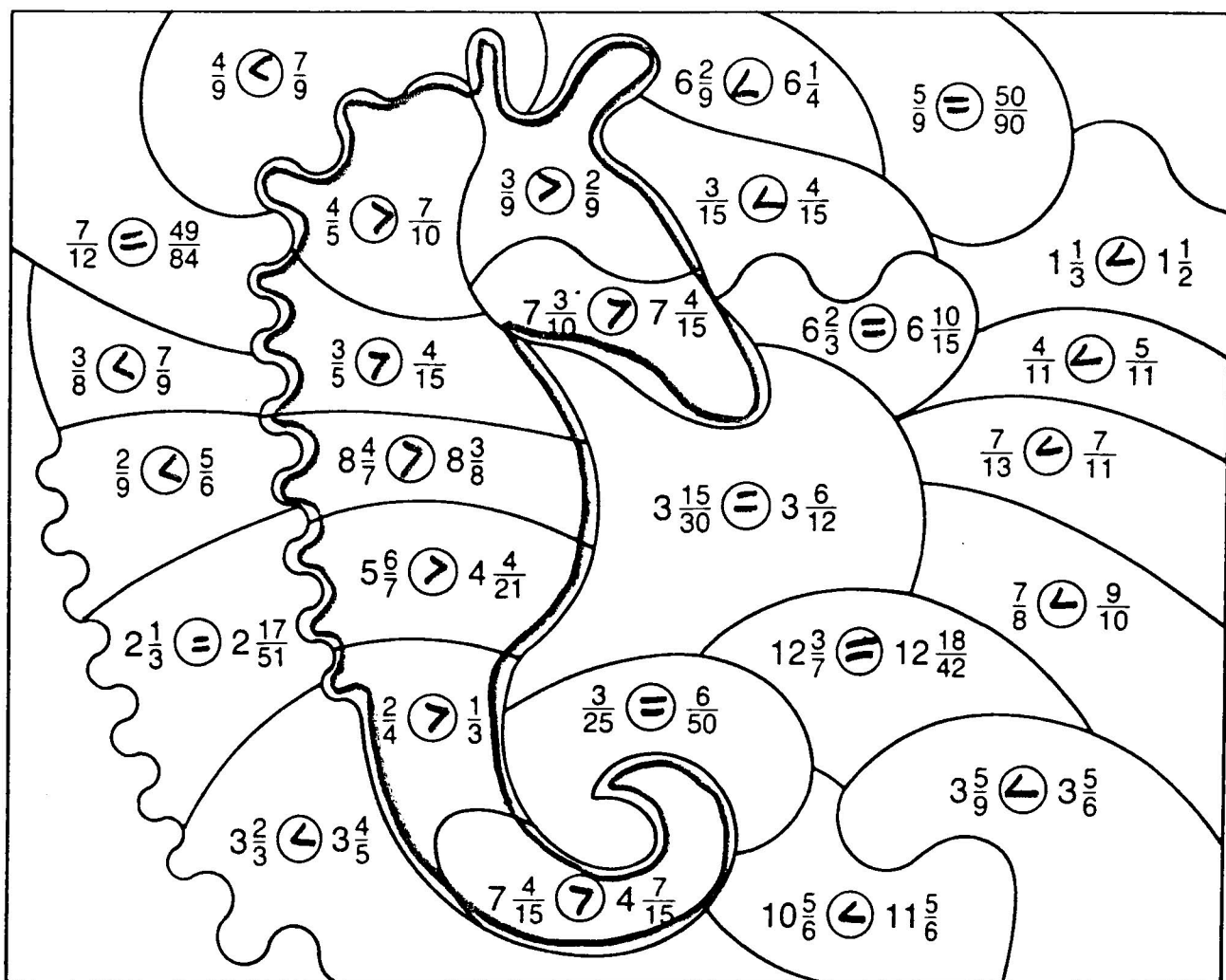
Pg #17

Skill #5

Name _____

P42

Compare. Use $>$, $<$, or $=$. Shade each section that has a $>$ answer. You will see a type of animal that was hatched by its father.



List in order from the least to the greatest.

- $\frac{1}{6}$ $\frac{2}{8}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{6}$ $\frac{2}{8}$
- $\frac{5}{8}$ $\frac{2}{3}$ $\frac{3}{4}$ $\frac{5}{8}$ $\frac{2}{3}$ $\frac{3}{4}$
- $\frac{1}{2}$ $\frac{3}{4}$ $\frac{2}{5}$ $\frac{2}{5}$ $\frac{1}{2}$ $\frac{3}{4}$
- $\frac{7}{12}$ $\frac{3}{5}$ $\frac{8}{15}$ $\frac{8}{15}$ $\frac{7}{12}$ $\frac{3}{5}$
- $3\frac{2}{3}$ $3\frac{4}{7}$ $3\frac{17}{21}$ $3\frac{4}{7}$ $3\frac{2}{3}$ $3\frac{17}{21}$
- $9\frac{1}{5}$ $9\frac{2}{9}$ $9\frac{4}{15}$ $9\frac{1}{5}$ $9\frac{2}{9}$ $9\frac{4}{15}$
- $8\frac{1}{3}$ $8\frac{2}{9}$ $8\frac{5}{12}$ $8\frac{2}{9}$ $8\frac{1}{3}$ $8\frac{5}{12}$
- $5\frac{3}{8}$ $4\frac{7}{9}$ $5\frac{2}{3}$ $4\frac{7}{9}$ $5\frac{3}{8}$ $5\frac{2}{3}$

Write an equal decimal in hundredths.

1. 6.3 6.30 2. 38 38.00 3. 72.9 72.90
 4. 8.600 8.60 5. 15 15.00 6. 9.980 9.98

Write an equal decimal in thousandths.

7. 4.62 4.620 8. 2.48 2.480 9. 6.8310 6.831
 10. 2.63 2.630 11. 0.27 0.270 12. 35 35.000

Use $<$, $>$, or $=$ to compare the numbers.

13. 0.35 $>$ 0.22 14. 3.0411 $>$ 1.040
 15. 8.48 $>$ 5.493 16. 0.5462 $<$ 0.54621
 17. 69.480 $=$ 69.48 18. 11.483 $<$ 11.485
 19. 14.602 $<$ 14.620 20. 7.638 $>$ 7.6371

Write the numbers in order from least to greatest.

21. 9.13 9.31 9.00 9.312 9.00 9.13 9.31 9.312
 22. 3.623 3.832 3.660 3.623 3.660 3.832
 23. 6.24 7.12 6.42 5.90 5.90 6.24 6.42 7.12
 24. 5.613 5.512 5.891 5.512 5.613 5.891
 25. 8.313 8.333 8.036 8.3 8.036 8.3 8.313 8.333
 26. 0.7 0.8 0.77 0.08 0.08 0.7 0.77 0.8
 27. 4.86 4.759 14.96 4.759 4.86 14.96

Write each number as an improper fraction.

1. $7\frac{4}{5} = \frac{39}{5}$

2. $3\frac{7}{9} = \frac{34}{9}$

3. $6\frac{3}{8} = \frac{51}{8}$

4. $9\frac{7}{9} = \frac{86}{9}$

5. $1\frac{4}{7} = \frac{11}{7}$

6. $5\frac{1}{5} = \frac{26}{5}$

7. $5\frac{7}{8} = \frac{47}{8}$

8. $4\frac{1}{3} = \frac{13}{3}$

9. $8\frac{3}{5} = \frac{43}{5}$

Write each improper fraction as a whole number or a mixed number.

10. $\frac{17}{4} = 4\frac{1}{4}$

11. $\frac{35}{8} = 4\frac{3}{8}$

12. $\frac{96}{6} = 16$

13. $\frac{43}{1} = 43$

14. $\frac{61}{12} = 5\frac{1}{12}$

15. $\frac{240}{10} = 24$

16. $\frac{19}{3} = 6\frac{1}{3}$

17. $\frac{47}{7} = 6\frac{5}{7}$

18. $\frac{71}{8} = 8\frac{7}{8}$

Compare these numbers. Use $<$, $>$, or $=$.

19. $8\frac{1}{2} < 8\frac{5}{8}$

20. $\frac{11}{12} > \frac{6}{7}$

21. $1\frac{1}{3} > \frac{8}{9}$

22. $3\frac{7}{24} > 2\frac{23}{24}$

23. $2\frac{9}{13} = 2\frac{18}{26}$

24. $6\frac{5}{6} > 6\frac{3}{4}$

List the numbers in order from least to greatest.

25. $3\frac{1}{2}$ $3\frac{9}{13}$ $3\frac{7}{26}$ $3\frac{7}{26}$ $3\frac{1}{2}$ $3\frac{9}{13}$

26. $7\frac{5}{6}$ $7\frac{2}{3}$ $7\frac{11}{12}$ $7\frac{2}{3}$ $7\frac{5}{6}$ $7\frac{11}{12}$

Pg #20

Maintenance

Write each improper fraction as a whole or mixed number. Reduce to lowest terms.

1. $\frac{6}{4}$ $1\frac{1}{2}$

2. $\frac{81}{9}$ 9

3. $\frac{18}{17}$ $1\frac{1}{17}$

4. $\frac{58}{14}$ $4\frac{1}{7}$

5. $\frac{36}{9}$ 4

6. $\frac{83}{7}$ $11\frac{6}{7}$

7. $\frac{37}{5}$ $7\frac{2}{5}$

8. $\frac{79}{8}$ $9\frac{7}{8}$

9. $\frac{51}{7}$ $7\frac{2}{7}$

10. $\frac{15}{3}$ 5

11. $\frac{29}{8}$ $3\frac{5}{8}$

12. $\frac{122}{68}$ $1\frac{27}{34}$

Write each mixed number as an improper fraction.

13. $7\frac{1}{12}$ $\frac{85}{12}$

14. $9\frac{1}{5}$ $\frac{46}{5}$

15. $5\frac{7}{8}$ $\frac{47}{8}$

16. $9\frac{3}{10}$ $\frac{93}{10}$

17. $3\frac{1}{2}$ $\frac{7}{2}$

18. $5\frac{2}{5}$ $\frac{27}{5}$

19. $15\frac{2}{5}$ $\frac{77}{5}$

20. $4\frac{2}{9}$ $\frac{38}{9}$

Solve each problem.

21. Marty stacked 45 tiles on his workbench. Each tile was $\frac{1}{4}$ inch thick. How high was the stack of tiles?

$$11\frac{1}{4} \text{ inches}$$

22. Jan used $2\frac{4}{5}$ bags of paste to wallpaper a room. The room had 4 walls. What was the average amount of paste she used per wall?

$$\frac{7}{10} \text{ bag}$$

Pg. #21

Write each decimal as a fraction in lowest terms.

1. $0.7 = \frac{7}{10}$

2. $0.42 = \frac{21}{50}$

3. $0.035 = \frac{7}{200}$

4. $0.210 = \frac{21}{100}$

5. $0.54 = \frac{27}{50}$

6. $0.75 = \frac{3}{4}$

Write each fraction as a decimal.

7. $\frac{11}{50} = .22$

8. $\frac{3}{50} = .06$

9. $\frac{33}{500} = .066$

10. $\frac{9}{10} = .9$

11. $\frac{12}{25} = .48$

12. $\frac{9}{40} = .225$

13. $\frac{29}{250} = .116$

14. $\frac{4}{5} = .8$

15. $\frac{1}{50} = .02$

16. $\frac{7}{8} = .875$

17. $\frac{2}{5} = .4$

18. $\frac{3}{4} = .75$

19. $\frac{7}{25} = .28$

20. $\frac{11}{12} = .91\bar{6}$

21. $\frac{1}{6} = .1\bar{6}$

22. $\frac{3}{40} = .075$

23. $\frac{7}{200} = .035$

24. $\frac{8}{9} = .\bar{8}$

Solve the problem.

25. The diameter of a certain drill bit is 0.375 inch. Write 0.375 as a fraction in lowest terms.

$$\frac{3}{8}$$

Pg # 22

Write each decimal as a percent.

1. $0.48 = 48\%$

2. $0.02 = 2\%$

3. $0.6 = 60\%$

4. $0.83 = 83\%$

5. $0.306 = 30.6\%$

6. $0.88 = 88\%$

7. $0.009 = .9\%$

8. $0.53 = 53\%$

9. $0.453 = 45.3\%$

10. $4.2 = 420\%$

11. $5.07 = 507\%$

12. $3 = 300\%$

13. $0.29 = 29\%$

14. $5 = 500\%$

15. $0.013 = 1.3\%$

16. $0.82\frac{1}{2} = 82\frac{1}{2}\%$

17. $0.02\frac{1}{3} = 2\frac{1}{3}\%$

18. $1.92\frac{3}{4} = 192\frac{3}{4}\%$

Write each percent as a decimal.

19. $12\% = .12$

20. $75\% = .75$

21. $9\% = .09$

22. $17\% = .17$

23. $6.4\% = .064$

24. $11.5\% = .115$

25. $368\% = 3.68$

26. $156\% = 1.56$

27. $250\% = 2.5$

28. $0.9\% = .009$

29. $18\frac{1}{3}\% = .18\frac{1}{3}$

30. $8\frac{3}{4}\% = .08\frac{3}{4}$

31. $23.25\% = .2325$

32. $0.03\% = .0003$

33. $0.08\% = .0008$

34. $0.75\% = .0075$

35. $112.3\% = 1.123$

36. $106\frac{1}{4}\% = 1.06\frac{1}{4}$

Pg #23

A. Write a decimal for each percent.

B. Write a percent for each decimal.

$28\% = 0.28$

$0.62 = 62\%$

$3\% = 0.03$

$0.8 = 80\%$

$4\frac{1}{3}\% = 0.04\frac{1}{3}$

$0.33\frac{1}{3} = 33\frac{1}{3}\%$

$27.6\% = 0.276$

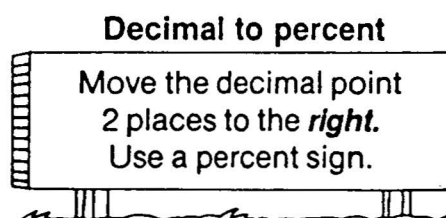
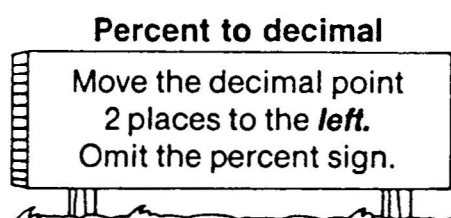
$0.572 = 57.2\%$

$0.25\% = 0.0025$

$2.6 = 260\%$

$132\% = 1.32$

$0.0014 = 0.14\%$



Write a decimal for each percent.

1. $32\% = 0.32$

2. $86\% = 0.86$

3. $15\% = 0.15$

4. $70\% = 0.70$

5. $9\% = 0.09$

6. $5\% = 0.05$

7. $100\% = 1.0$

8. $210\% = 2.10$

9. $16.4\% = 0.164$

10. $2.6\% = 0.026$

11. $6\frac{1}{2}\% = 0.065$

12. $7\frac{2}{3}\% = 0.07\bar{6}$

Write a percent for each decimal.

13. $0.48 = 48\%$

14. $0.27 = 27\%$

15. $0.85 = 85\%$

16. $0.06 = 6\%$

17. $0.09 = 9\%$

18. $0.7 = 70\%$

19. $2 = 200\%$

20. $1 = 100\%$

21. $0.185 = 18.5\%$

Write each number as a percent.

1. $\frac{83}{100} =$ 83%

2. $\frac{19}{100} =$ 19%

3. $\frac{7}{100} =$ 7%

4. $\frac{31}{50} =$ 62%

5. $\frac{9}{50} =$ 18%

6. $\frac{8}{25} =$ 32%

7. $\frac{11}{25} =$ 44%

8. $\frac{3}{4} =$ 75%

9. $\frac{2}{5} =$ 40%

10. $\frac{1}{3} =$ 33 $\frac{1}{3}$ %

11. $\frac{3}{8} =$ 37.5%

12. $\frac{7}{16} =$ 43.75%

13. $\frac{23}{40} =$ 57.5%

14. $\frac{5}{9} =$ 55 $\frac{5}{9}$ %

15. $\frac{14}{20} =$ 70%

16. $\frac{4}{5} =$ 80%

17. $\frac{1}{6} =$ 16 $\frac{2}{3}$ %

18. $2\frac{1}{2} =$ 250%

19. $7\frac{3}{10} =$ 730%

20. $5\frac{2}{3} =$ 566 $\frac{2}{3}$ %

21. $\frac{17}{17} =$ 100%

Miss Fisher teaches a mathematics class that is 54 minutes long. The graph shows what fraction of the time is spent on each activity. Tell what percent of the time is spent on each of the following.



22. Discussion 11 $\frac{1}{3}$ %

23. New topic 33 $\frac{1}{3}$ %

24. Guided practice 50%

25. Review 5 $\frac{5}{9}$ %

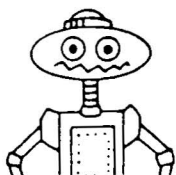
Pg #25

A. Write a percent for 7 out of 25.

7 out of 25 is the fraction $\frac{7}{25}$.

$$\frac{7}{25} = \frac{28}{100} = 28\%$$

When possible, write a fraction with a denominator of 100 and then write as a percent.



% means
hundredths.

B. Write a percent for $\frac{3}{8}$.

$$\frac{3}{8} = 3 \div 8$$

$$0.375, \text{ or } 0.37\frac{1}{2}$$

$$8 \overline{) 3.00}$$

$$\underline{24}$$

$$60$$

$$\underline{56}$$

$$4$$

Divide until the
quotient shows
hundredths.

$$0.37\frac{1}{2} = 37\frac{1}{2}\%$$

$$\frac{3}{8} = 37\frac{1}{2}\%$$

Write each number as a percent.

1. $\frac{1}{4} = 25\%$

2. $\frac{2}{5} = 40\%$

3. $\frac{3}{10} = 30\%$

4. $\frac{3}{20} = 15\%$

5. $\frac{3}{100} = 3\%$

6. $\frac{3}{50} = 6\%$

7. $\frac{27}{100} = 27\%$

8. $\frac{41}{50} = 82\%$

9. $\frac{4}{25} = 16\%$

10. $\frac{1}{6} = 16.\bar{6}\%$

11. $\frac{5}{12} = 41.\bar{6}\%$

12. $\frac{3}{200} = 1.5\%$

13. $\frac{7}{8} = 87.5\%$

14. $\frac{7}{12} = 58.\bar{3}\%$

15. $1\frac{1}{4} = 125\%$

Complete the table. Write the fractions in lowest terms.

Fraction	Decimal	Percent
$\frac{1}{4}$	0.25	25%
$\frac{1}{6}$	$0.1\overline{6}\frac{2}{3}$	$16\frac{2}{3}\%$
$\frac{1}{2}$	.5	50%
$\frac{3}{4}$	.75	75%
1	1	100%
$\frac{1}{8}$	.125	12.5%
$\frac{7}{10}$	0.7	70%
$\frac{1}{100}$	.01	1%
$\frac{1}{5}$	.2	20%
$\frac{9}{10}$	.9	90%
$\frac{4}{5}$	0.8	80%
$\frac{5}{6}$	$.8\overline{3}\frac{1}{3}$	$83\frac{1}{3}\%$

Fraction	Decimal	Percent
$\frac{3}{5}$	.6	60%
$\frac{23}{40}$	0.575	57.5%
$\frac{2}{5}$	.4	40%
$\frac{39}{100}$	.39	39%
$\frac{1}{3}$	$.3\overline{3}\frac{1}{3}$	$33\frac{1}{3}\%$
$\frac{5}{6}$	$.8\overline{3}\frac{1}{3}$	$83\frac{1}{3}\%$
$\frac{3}{10}$	.3	30%
$\frac{1}{20}$	.05	5%
$\frac{7}{8}$	0.875	87.5%
$\frac{1}{10}$	.1	10%
$\frac{3}{8}$	.375	37.5%
$\frac{5}{8}$	0.625	62.5%

A. Write 60% as a fraction.

$$60\% = \frac{60}{100} = \frac{3}{5}$$

$$60\% = \frac{3}{5}$$

B. Write $66\frac{2}{3}\%$ as a fraction.

$$66\frac{2}{3}\% = \frac{66\frac{2}{3}}{100}$$

$$= 66\frac{2}{3} \div 100$$

$$= \frac{200}{3} \div 100$$

$$= \frac{200}{3} \times \frac{1}{100}$$

$$= \frac{200 \times 1}{3 \times 100} = \frac{2}{3}$$

$$66\frac{2}{3}\% = \frac{2}{3}$$

C. Write 350% as a fraction in lowest terms or as a mixed number.

$$350\% = \frac{350}{100} = \frac{7}{2} = 3\frac{1}{2}$$

$$350\% = 3\frac{1}{2}$$

For each percent, write a fraction in lowest terms, as a mixed number, or as a whole number.

1. $5\% = \frac{5}{100} = \frac{1}{20}$

2. $50\% = \frac{1}{2}$

3. $500\% = 5$

4. $2.5\% = \frac{1}{40}$

5. $25\% = \frac{1}{4}$

6. $250\% = 2\frac{1}{2}$

7. $1\% = \frac{1}{100}$

8. $10\% = \frac{1}{10}$

9. $100\% = 1$

10. $300\% = 3$

11. $0\% = 0$

12. $75\% = \frac{3}{4}$

13. $45\% = \frac{9}{20}$

14. $16\frac{2}{3}\% = \frac{1}{6}$

15. $18\frac{1}{2}\% = \frac{37}{200}$

Order of Operations

1) $12 \cdot 6 \div 3 \cdot 2 \div 8 = x$

$x = 6$

2) $7 + \frac{60+4}{10-8} \div 2^5 = W$

$8 = a$

3) $3^3 + 4 \div 2(5 \cdot 3) - 12 = y$

$45 = y$

4) $\frac{-6(-3)}{-2} - (-7)(3) + 4^3$

76

5) $12 \cdot (-3) - \frac{-50}{2} \cdot 2^3 - 4$

160

6) $7 + 5^3 - \left(\frac{16}{-4}\right) \cdot -2^3 + 5$

105

7) $5 + 3^3 - 7 + (6 \cdot 3) = W$

$43 = W$

8) $(5 \cdot 2)(4 \cdot 5) \div 5 = x$

9) $7 + (12 \div 4) \cdot 2^3 - 15 = B$

$16 = B$

Pg #29

Skill #0

Order of Operations

① $6 + 4^2 - (-8) \div (2) + (-3)(6)$ ② $\frac{-4 \cdot -3}{-2} - (-3)(10) + (-14)$

8

10

③ $10 \cdot (-2) - \frac{-6}{2} \cdot 3^2 - 5$

2

④ $9 + \frac{4(-7)}{2} \cdot 3 + \frac{8-12}{4} - 3^3$

-61

⑤ $6 + 4^3 - (7 \cdot 8) + 4 = N$

18

⑥ $12 + \frac{12+6}{3} \div 3 \cdot 9 = X$

30

⑦ $-7(6+3) \div -9 + 2 \cdot 3 = X$

13

⑧ $6 \cdot 5 \div 2 \cdot 4 \div 6 = X$

10

⑨ $9 + \frac{12+4}{4 \div 2} \cdot 2^3 - 8 = W$

65

⑩ $72 - 16 + 4^3 + 4 \div 2 = B$

122

Evaluate $\frac{22(2+2)}{2}$.

() tells you to multiply.

$$\frac{22(2+2)}{2}$$

$$= \frac{22(4)}{2}$$

$$= \frac{88}{2}$$

$$= 44$$

Do operation
inside () first.
Then do operation
above fraction bar.

$\frac{88}{2}$ means $88 \div 2$.

Standard order of operations:

Multiply as indicated by exponents.

Do $\times$ and $\div$ left to right.Then do $+$ and $-$ left to right.

If there are () or division bars:

Do operations inside the ().

Then do operations above and below division bars.

Compute each answer. The answers
are the whole numbers from 1–12.

$$1. 2 + 2 + 2 + 2 + 2 = \underline{10}$$

$$3. 2(2 + 2) - 2 - 2 = \underline{4}$$

$$5. 2 + 2 + 2 - 2 - 2 = \underline{2}$$

$$7. \frac{22}{2} + \frac{2}{2} = \underline{12}$$

$$9. 2 + 2 - 2 + \frac{2}{2} = \underline{3}$$

$$11. 2(2 + 2) + 2 - 2 = \underline{8}$$

$$2. 2 + 2 + 2 - \frac{2}{2} = \underline{5}$$

$$4. 2 + 2 - 2 - \frac{2}{2} = \underline{1}$$

$$6. \frac{22}{2} - 2 - 2 = \underline{7}$$

$$8. 2 + 2 + 2 + 2 - 2 = \underline{6}$$

$$10. \frac{2}{2} + 2(2 + 2) = \underline{9}$$

$$12. \frac{22}{2} + 2 - 2 = \underline{11}$$

Compute each answer.

$$13. 3 + 4^2 = \underline{19}$$

$$14. (3 + 4)^2 = \underline{49}$$

$$15. 4(3^2 - 2) = \underline{28}$$

$$16. 2 \times 4 + 3^2 = \underline{17}$$

$$17. \frac{2 \times 4 + 3^2}{(3 + 1)^2 + 1} = \underline{1}$$

$$18. \frac{3 + (3^2 - 2)}{3(4) - 7} = \underline{2}$$

Add or subtract.

1. $0.95 - 0.088 = \underline{.862}$

2. $53.14 + 8.08 = \underline{61.22}$

3. $48.33 + 28.34 = \underline{76.67}$

4. $34 - 23.001 = \underline{10.999}$

5. $72.54 - 16.67 = \underline{55.87}$

6. $33.3 + 26.2 + 0.3 = \underline{59.8}$

7. $4.9 + 2.04 + 0.38 = \underline{7.32}$

8. $0.5 + 73.5 + 11 = \underline{85}$

9. $313.002 + 8.457 + 66.3 + 3 = \underline{390.759}$

What has a mouth but
can't speak, and a bed
that can't be slept in?

To find out, work each exercise. Find
your answer below. Write the letter
for that exercise. Two answers are
not used.



10.
$$\begin{array}{r} 8.3 \\ + 4.55 \\ \hline 12.85 \end{array} \quad \text{R}$$

11.
$$\begin{array}{r} 5.008 \\ + 8.346 \\ \hline 13.354 \end{array} \quad \text{E}$$

12.
$$\begin{array}{r} 21.4 \\ + 17.3 \\ \hline 38.7 \end{array} \quad \text{T}$$

13.
$$\begin{array}{r} 32.48 \\ - 12.08 \\ \hline 20.40 \end{array} \quad \text{V}$$

14.
$$\begin{array}{r} 7.9 \\ - 3.78 \\ \hline 4.12 \end{array} \quad \text{R}$$

15.
$$\begin{array}{r} 63.84 \\ + 14 \\ \hline 77.84 \end{array} \quad \text{R}$$

16.
$$\begin{array}{r} 26 \\ - 17.32 \\ \hline 8.68 \end{array} \quad \text{I}$$

17.
$$\begin{array}{r} 46.07 \\ 21.12 \\ + 1.3 \\ \hline 68.49 \end{array} \quad \text{A}$$

$$\frac{\text{A}}{68.49}$$

$$\frac{\text{R}}{12.85}$$

$$\frac{\text{I}}{8.68}$$

$$\frac{\text{V}}{20.4}$$

$$\frac{\text{E}}{13.354}$$

$$\frac{\text{R}}{4.12}$$

Name

Skill #9

Decimals

Adding Decimals

$13.3 + 7.23 =$	$ \begin{array}{r} 13.30 \\ + 7.23 \\ \hline 20.53 \end{array} $
-----------------	---

Add.

1. $3.456 + 2.894 = 6.350$

11. $5.02 + 5.20 = 10.22$

2. $4.89 + 5.73 = 10.62$

12. $9.91 + 2.734 + 8.41 = 21.054$

3. $3.5 + 8.4 = 11.9$

13. $121.9 + .736 = 122.636$

4. $43.56 + 105.7 = 149.26$

14. $17.438 + 4.82 = 22.258$

5. $15.76 + 34.23 + 3.9 = 53.89$

15. $322.815 + 6.876 = 329.691$

6. $6.8 + 13.634 + 2.34 = 22.774$

16. $5.97 + 4.87 + 3.908 = 14.748$

7. $5.7 + 5.34 + 4.78 = 15.82$

17. $3.83 + 45.90 + 5.00 = 54.73$

8. $12.87 + 2.87 = 15.74$

18. $5.94 + 5.32 = 11.26$

9. $\$13.39 + \$7.40 = \$20.79$

19. $6.41 + 3.99 = 10.4$

10. $.017 + 13 = 13.017$

20. $2.987 + 451.90 = 454.887$

Adding Decimals

$$\begin{array}{r} 11.2 + 6.12 = \\ 11.20 \\ + 6.12 \\ \hline 17.32 \end{array}$$

Add.

1. $2.312 + 5.371 = 7.683$

11. $3.43 + 5.45 = 8.88$

2. $3.09 + 2.19 = 5.28$

12. $5.66 + 7.34 + 6.30 = 19.3$

3. $2.15 + 4.58 = 6.73$

13. $281.7 + .736 = 282.436$

4. $61.71 + 324.95 = 386.66$

14. $23.431 + 5.34 = 28.771$

5. $46.29 + 22.53 + 5.6 = 74.42$

15. $654.595 + 3.650 = 658.245$

6. $2.6 + 21.540 + 3.65 = 27.79$

16. $6.29 + 9.95 + 6.332 = 22.572$

7. $5.4 + 7.38 + 6.21 = 18.99$

17. $8.45 + 95.20 + 5.34 = 108.99$

8. $27.34 + 6.45 = 33.79$

18. $5.37 + 7.37 = 12.74$

9. $\$12.52 + \$8.32 = \$20.84$

19. $8.22 + 8.41 = 16.63$

10. $.032 + 37 = 37.032$

20. $5.372 + 371.52 = 376.892$

Name

Skill #9

Decimals

Subtracting Decimals

$$\begin{array}{r}
 17.2 - 5.10 = \quad 17.20 \\
 \quad \quad \quad - 5.10 \\
 \hline
 \quad \quad \quad 12.10
 \end{array}$$

Subtract.

1. $13.2 - 6.7 = 6.5$

11. $543.43 - 35.342 = 508.088$

2. $13.3 - 12.4 = .9$

12. $436.82 - 328.56 = 108.26$

3. $62.1 - 33.29 = 28.81$

13. $75.034 - 22.439 = 52.595$

4. $76.34 - 47.30 = 29.04$

14. $439.02 - 232.76 = 206.26$

5. $325.34 - 235.34 = 90.00$

15. $756.98 - 32.43 = 724.55$

6. $55.23 - 47.29 = 7.94$

16. $65.9 - 33.32 = 32.58$

7. $\$21.73 - \$16.43 = \$5.30$

17. $21.32 - 4.28 = 17.04$

8. $3.239 - .06 = 3.179$

18. $4.64 - .476 = 4.164$

9. $23.28 - .002 - 1.2 = 22.078$

19. $121.32 - 4.34 = 116.98$

10. $35.63 - .021 = 35.609$

20. $34.32 - 12.43 = 21.89$

Subtracting Decimals

$13.5 - 4.21 =$	13.50
	$- 4.21$
	9.29

Subtract.

1. $4.7 - 2.3 = 2.4$

11. $756.84 - 31.343 = 725.497$

2. $24.34 - 23.19 = 1.15$

12. $34,245.34 - 28,674.87 = 5570.47$

3. $84.87 - 78.45 = 6.42$

13. $82.72 - 43.658 = 39.062$

4. $85.76 - 34.65 = 51.11$

14. $954.34 - 657.56 = 296.78$

5. $342.43 - 259.24 = 83.19$

15. $843.44 - 22.39 = 821.05$

6. $74.81 - 61.92 = 12.89$

16. $84.8 - 44.87 = 39.93$

7. $\$54.68 - \$23.76 = \$30.92$

17. $93.76 - 8.67 = 85.09$

8. $7.435 - .0345 = 7.4005$

18. $6.56 - .654 = 5.906$

9. $43.50 - .015 - 3.2 = 40.285$

19. $254.54 - 6.45 = 248.09$

10. $56.40 - .043 = 56.357$

20. $39.43 - 15.34 = 24.09$

What two months of the year were named after famous Roman leaders?

To find out, multiply. Cross out each box in the chart that contains an answer. The remaining months are the answers.



$$\begin{array}{r} 1. \quad 72 \\ \times 0.03 \\ \hline 2.16 \end{array}$$

$$\begin{array}{r} 2. \quad 38 \\ \times 0.07 \\ \hline 2.66 \end{array}$$

$$\begin{array}{r} 3. \quad 41 \\ \times 0.04 \\ \hline 1.64 \end{array}$$

$$\begin{array}{r} 4. \quad 68 \\ \times 0.09 \\ \hline 6.12 \end{array}$$

$$\begin{array}{r} 5. \quad 0.061 \\ \times 82 \\ \hline 5.002 \end{array}$$

$$\begin{array}{r} 6. \quad 0.049 \\ \times 2.6 \\ \hline .1274 \end{array}$$

$$\begin{array}{r} 7. \quad 0.36 \\ \times 0.36 \\ \hline .1296 \end{array}$$

$$\begin{array}{r} 8. \quad 44 \\ \times 0.17 \\ \hline 7.48 \end{array}$$

$$9. \quad 0.13 \times 0.13 = \underline{.0169}$$

$$10. \quad 17.03 \times 0.08 = \underline{1.3624}$$

$$11. \quad 2.9 \times 0.43 = \underline{1.247}$$

$$12. \quad 0.083 \times 7.2 = \underline{.5976}$$

2.16 June	0.5976 September	5.002 March	0.1274 October	1.247 January
0.0169 June	2.66 October	0.00038 July	7.48 February	0.1296 April
6.12 December	1.04 January	1.3624 March	0.0005 August	

Pg #37

Multiplying Decimals

$\begin{array}{r} (.4) (.06) \\ \hline \end{array}$	$\begin{array}{r} .4 \\ \times .06 \\ \hline .024 \end{array}$
3 decimal places	

Multiply. Use mental math

1. $0.06 \times 0.4 = .024$

11. $(0.012)(0.7) = .0084$

2. $(1.2)(0.03) = .036$

12. $(0.7)(0.011) = .0077$

3. $(0.9)(0.9) = .81$

13. $0.03 \times 0.6 = .018$

4. $0.03 \times 0.08 = .0024$

14. $(1.1)(0.11) = .121$

5. $0.5 \times 0.06 = .03$

15. $(0.12)(.05) = .006$

6. $(0.11)(0.05) = .0055$

16. $0.06 \times 0.07 = .0042$

7. $(0.7)(0.07) = .049$

17. $(0.10)(0.05) = .005$

8. $0.12 \times 0.04 = .0048$

18. $(0.012)(1.2) = .0144$

9. $(0.8)(0.005) = .004$

19. $(0.6)(0.8) = .48$

10. $(0.9)(0.002) = .0018$

20. $(0.02)(1.2) = .024$

Why doesn't the ocean overflow the land?

To find out, divide. Find each answer at the right. Write the letter for that exercise. Two answers are not used.

$$1. \begin{array}{r} 14 \text{ T} \\ 0.08 \overline{)1.12} \end{array}$$

$$2. \begin{array}{r} 7 \text{ I} \\ 5.5 \overline{)38.5} \end{array}$$

$$3. \begin{array}{r} 90 \text{ T} \\ 0.06 \overline{)5.4} \end{array}$$

$$4. \begin{array}{r} 3.6 \text{ E} \\ 3.05 \overline{)10.98} \end{array}$$

$$5. \frac{5.6}{0.07} = \underline{80} \text{ D}$$

$$6. \frac{0.738}{0.82} = \underline{.9} \text{ S}$$

$$7. 0.52 \div 13 = \underline{.04} \text{ I}$$

$$8. 30.2 \div 6.04 = \underline{5} \text{ B}$$

$$9. 6.644 \div 3.02 = \underline{2.2} \text{ I}$$

$$10. 7.849 \div 0.5 = \underline{15.698} \text{ P}$$



Because ...

$$7 \text{ I}$$

$$14 \text{ T}$$

$$2.2 \text{ I}$$

$$0.9 \text{ S}$$

$$90 \text{ T}$$

$$0.4 \text{ I}$$

$$80 \text{ D}$$

$$3.6 \text{ E}$$

Pg#39

Name _____

Skill #9

Decimals

Dividing Decimals

Divide. Use mental math.

1. $0.36 \div 0.4 = .9$

12. $0.55 \div 0.005 = 110$

2. $5.4 \div 0.06 = 90$

13. $0.0027 \div 0.9 = .003$

3. $1.21 \div 0.11 = 11$

14. $100 \div 0.01 = 10,000$

4. $1.69 \div 0.13 = 13$

15. $0.132 \div 0.012 = 11$

5. $0.032 \div 0.4 = .08$

16. $7.2 \div 0.06 = 120$

6. $9.6 \div 0.12 = 80$

17. $0.064 \div 0.8 = .08$

7. $14.4 \div 1.2 = 12$

18. $0.0054 \div 0.006 = .9$

8. $0.012 \div 0.3 = .4$

19. $3.6 \div 0.009 = 400$

9. $0.56 \div 0.008 = 70$

20. $0.24 \div 0.008 = 30$

10. $0.072 \div 0.08 = .9$

21. $84 \div 1.2 = 70$

11. $2.6 \div 0.02 = 130$

22. $0.108 \div 0.09 = 1.2$

Name _____

Skill #9

Decimals

Practice with Decimals

Perform the indicated operation.

1. $2.62 \div .54 = 4.\overline{851}$

12. $87.21 - 23.98 + 11.12 = 74.35$

2. $31.25 + 23.5 = 54.75$

13. $(.03)(.23)(1.3) = .00897$

3. $(9.9)(2.03) = 20.097$

14. $23.65 \div 22.81 = 1.0368259$

4. $8726 \div 2.84 = 3072.5352$

15. $2.34 \div .983 = 2.3804679$

5. $1.32 \div 1.22 = 1.0819672$

16. $65.78 + 54.90 = 120.68$

6. $6.55 + .08 = 6.63$

17. $432.42 - 237.89 = 194.53$

7. $12.78 - 7.2 = 5.58$

18. $12.938 + 11.548 = 24.486$

8. $(3.2)(4.065) = 13.008$

19. $789.987 - 231.093 = 558.894$

9. $21.7 - 15.9 = 5.8$

20. $(13.2)(34.9) = 460.68$

10. $.6 + .09 + 1.75 = 2.44$

21. $1243.32 - 1032.90 = 210.42$

11. $(2.5)(3.4)(4.4) = 37.4$

22. $5.23 \div 3.12 = 1.676282$

Practice with Decimals

Perform the indicated operation.

1. $3.56 \div .73 = 4.8767123$

12. $33.54 - 22.56 + 23.43 = 34.41$

2. $22.59 + 33.5 = 56.09$

13. $(2.3)(3.04)(3.46) = 24.19232$

3. $(4.3)(3.59) = 15.437$

14. $84.34 \div 65.76 = 1.2825425$

4. $3496 \div 3.549 = 985.06421$

15. $4.33 \div .393 = 11.017811$

5. $7.459 \div 2.459 = 3.0333468$

16. $54.34 + 31.98 = 86.32$

6. $7.546 + .0958 = 7.6418$

17. $843.21 - 342.03 = 501.18$

7. $15.54 - 8.34 = 7.2$

18. $23.434 + 23.403 = 46.837$

8. $(6.5)(5.304) = 34.476$

19. $345.765 - 237.405 = 108.36$

9. $43.7 - 34.5 = 9.2$

20. $(23.4)(3.9) = 91.26$

10. $.8 + .07 + 3.73 = 4.6$

21. $1465.65 - 1253.42 = 212.23$

11. $(5.5)(2.6)(4.0) = 57.2$

22. $6.37 \div 6.50 = .98$

Maintenance

Add.

1. $\frac{1}{8} + \frac{3}{4} = \underline{\frac{7}{8}}$

2. $\frac{2}{5} + \frac{1}{5} = \underline{\frac{3}{5}}$

3. $\frac{5}{6} + \frac{3}{7} = \underline{1\frac{11}{42}}$

4. $\frac{1}{8} + \frac{5}{12} = \underline{\frac{13}{24}}$

5. $\frac{6}{7} + \frac{8}{49} = \underline{1\frac{1}{49}}$

6. $\frac{4}{9} + \frac{13}{27} = \underline{\frac{25}{27}}$

7. $2\frac{5}{6} + 3\frac{2}{3} = \underline{6\frac{1}{2}}$

8. $4\frac{6}{7} + 8\frac{1}{4} = \underline{13\frac{3}{28}}$

9. $\frac{7}{8} + \frac{5}{24} = \underline{1\frac{1}{12}}$

10. $\frac{3}{16} + \frac{13}{16} = \underline{1}$

11. $\frac{1}{2} + \frac{3}{32} = \underline{\frac{19}{32}}$

12. $\frac{2}{5} + \frac{1}{4} = \underline{\frac{13}{20}}$

13. $\frac{2}{13} + \frac{5}{39} = \underline{\frac{11}{39}}$

14. $\frac{1}{4} + \frac{7}{12} = \underline{\frac{5}{6}}$

15. $8\frac{1}{2} + 5\frac{2}{3} = \underline{14\frac{1}{6}}$

16. $1\frac{8}{9} + 2\frac{2}{3} = \underline{4\frac{5}{9}}$

17. $7\frac{2}{3} + \frac{5}{51} = \underline{7\frac{13}{17}}$

18. $11\frac{1}{5} + \frac{17}{20} = \underline{12\frac{1}{20}}$

19. $\frac{1}{3} + \frac{5}{6} + \frac{1}{9} = \underline{1\frac{5}{18}}$

20. $\frac{1}{2} + \frac{1}{4} + \frac{3}{8} = \underline{1\frac{1}{8}}$

Pg. #43

What kind of pets can you bring along to music lessons?

To find out, add. Find each answer in a box below and cross out that box. The letters in the remaining boxes answer the question. Write them in order on the blanks.



$$\begin{array}{r} 1. \quad 3\frac{1}{3} \\ + 2\frac{1}{4} \\ \hline 5\frac{7}{12} \end{array}$$

$$\begin{array}{r} 2. \quad 8\frac{3}{4} \\ + 1\frac{1}{4} \\ \hline 10 \end{array}$$

$$\begin{array}{r} 3. \quad 16\frac{1}{5} \\ + 3\frac{4}{5} \\ \hline 20 \end{array}$$

$$\begin{array}{r} 4. \quad 69\frac{1}{8} \\ + 18\frac{3}{4} \\ \hline 87\frac{7}{8} \end{array}$$

$$5. \quad 4\frac{3}{4} + 16\frac{3}{4} = 21\frac{1}{2}$$

$$6. \quad 9\frac{1}{2} + 14\frac{1}{2} = 24$$

$$7. \quad 23\frac{1}{5} + \frac{2}{3} = 23\frac{13}{15}$$

$$8. \quad 18\frac{5}{8} + 6\frac{3}{4} = 25\frac{3}{8}$$

$$9. \quad 14\frac{3}{5} + \frac{6}{7} = 15\frac{16}{35}$$

$$10. \quad 16\frac{1}{7} + 33\frac{6}{7} = 50$$

$$11. \quad 4\frac{3}{8} + \frac{2}{3} + 5\frac{5}{6} = 10\frac{7}{8}$$

$$12. \quad 14\frac{1}{2} + 9\frac{1}{3} + \frac{5}{7} = 24\frac{23}{42}$$

15$\frac{16}{25}$ S	25 T	10 O	23$\frac{18}{15}$ H	15 $\frac{3}{5}$ R	21$\frac{1}{2}$ B	9 $\frac{1}{2}$ U	10$\frac{7}{8}$ C	20 D	24 $\frac{1}{7}$ M
24 O	50 A	19 $\frac{3}{5}$ P	78 $\frac{1}{4}$ E	25$\frac{3}{8}$ F	5$\frac{7}{2}$ I	11 T	87$\frac{7}{8}$ Y	24$\frac{28}{42}$ G	15 $\frac{1}{7}$ S

T R U M P E T S

Pg#44

Maintenance

Subtract.

1. $\frac{9}{16} - \frac{1}{16} = \underline{\frac{1}{2}}$

2. $\frac{3}{4} - \frac{1}{16} = \underline{\frac{11}{16}}$

3. $\frac{5}{6} - \frac{2}{5} = \underline{\frac{13}{30}}$

4. $\frac{9}{10} - \frac{1}{3} = \underline{\frac{17}{30}}$

5. $\frac{7}{8} - \frac{1}{4} = \underline{\frac{5}{8}}$

6. $\frac{14}{15} - \frac{2}{3} = \underline{\frac{4}{15}}$

7.
$$\begin{array}{r} 3\frac{2}{3} \\ - 1\frac{5}{9} \\ \hline 2\frac{1}{9} \end{array}$$

8.
$$\begin{array}{r} 1\frac{5}{16} \\ - \frac{1}{8} \\ \hline 1\frac{3}{16} \end{array}$$

9.
$$\begin{array}{r} \frac{5}{6} \\ - \frac{3}{7} \\ \hline 17/42 \end{array}$$

10.
$$\begin{array}{r} 3\frac{6}{7} \\ - \frac{1}{4} \\ \hline 3\frac{17}{28} \end{array}$$

11.
$$\begin{array}{r} 4\frac{7}{9} \\ - 2\frac{3}{5} \\ \hline 2\frac{8}{45} \end{array}$$

12.
$$\begin{array}{r} 3\frac{2}{3} \\ - 2\frac{5}{6} \\ \hline 5/6 \end{array}$$

13.
$$\begin{array}{r} \frac{6}{39} \\ - \frac{2}{13} \\ \hline 0 \end{array}$$

14.
$$\begin{array}{r} 9\frac{2}{5} \\ - 4\frac{1}{4} \\ \hline 5\frac{3}{20} \end{array}$$

15.
$$\begin{array}{r} 8\frac{1}{2} \\ - 5\frac{2}{3} \\ \hline 2\frac{5}{6} \end{array}$$

16.
$$\begin{array}{r} 2\frac{1}{3} \\ - 1\frac{8}{9} \\ \hline \frac{4}{9} \end{array}$$

17.
$$\begin{array}{r} \frac{3}{8} \\ - \frac{5}{32} \\ \hline \frac{7}{32} \end{array}$$

18.
$$\begin{array}{r} 6\frac{31}{42} \\ - \frac{6}{7} \\ \hline 5\frac{37}{42} \end{array}$$

Pg. #45

Subtract.

P51

$$1. \frac{7}{8} - \frac{5}{8} = \underline{\frac{1}{4}} \quad 2. \frac{2}{3} - \frac{1}{4} = \underline{\frac{5}{12}} \quad 3. \frac{3}{5} - \frac{1}{2} = \underline{\frac{1}{10}}$$

$$4. \frac{5}{6} - \frac{1}{3} = \underline{\frac{1}{2}} \quad 5. \frac{3}{4} - \frac{5}{12} = \underline{\frac{1}{3}} \quad 6. \frac{8}{9} - \frac{4}{5} = \underline{\frac{4}{45}}$$

$$7. \begin{array}{r} 1\frac{2}{3} \\ - \frac{3}{5} \\ \hline 1\frac{1}{15} \end{array}$$

$$8. \begin{array}{r} 3\frac{3}{4} \\ - 2\frac{1}{7} \\ \hline 1\frac{17}{28} \end{array}$$

$$9. \begin{array}{r} 6\frac{3}{7} \\ - 1\frac{1}{3} \\ \hline 5\frac{2}{21} \end{array}$$

$$10. \begin{array}{r} 21\frac{3}{8} \\ - 9\frac{1}{3} \\ \hline 12\frac{1}{24} \end{array}$$

$$11. \begin{array}{r} 67\frac{4}{5} \\ - 29\frac{1}{4} \\ \hline 38\frac{11}{20} \end{array}$$

$$12. \begin{array}{r} 17\frac{23}{24} \\ - \frac{2}{3} \\ \hline 17\frac{7}{24} \end{array}$$

$$13. \begin{array}{r} 52\frac{2}{3} \\ - 14\frac{1}{4} \\ \hline 38\frac{5}{12} \end{array}$$

$$14. \begin{array}{r} 18\frac{3}{8} \\ - 18\frac{1}{4} \\ \hline \frac{1}{8} \end{array}$$

$$15. \begin{array}{r} 34\frac{10}{21} \\ - 11\frac{1}{3} \\ \hline 23\frac{1}{7} \end{array}$$

$$16. \begin{array}{r} 33\frac{3}{5} \\ - 5\frac{1}{6} \\ \hline 28\frac{13}{30} \end{array}$$

$$17. \begin{array}{r} 7\frac{2}{3} \\ - 4\frac{1}{8} \\ \hline 3\frac{13}{24} \end{array}$$

$$18. \begin{array}{r} 44\frac{7}{9} \\ - 13\frac{2}{3} \\ \hline 31\frac{1}{9} \end{array}$$

Solve each problem.

19. An overpass has a clearance of $17\frac{3}{4}$ feet. How much space is there between the overpass and a truck that is $14\frac{1}{3}$ feet high?

$$\underline{3\frac{5}{12} \text{ feet}}$$

20. A truck loaded with cargo weighed $6\frac{5}{6}$ tons. When empty, the truck weighed $2\frac{1}{2}$ tons. How much did the cargo weigh?

$$\underline{4\frac{1}{3} \text{ tons}}$$

Pg #46

Subtract.

$$\begin{array}{r} 1. \quad 26\frac{5}{6} \\ - 7\frac{1}{2} \\ \hline 19\frac{1}{3} \end{array}$$

$$\begin{array}{r} 2. \quad 14\frac{2}{3} \\ - 6\frac{1}{5} \\ \hline 8\frac{7}{8} \end{array}$$

$$\begin{array}{r} 3. \quad 35 \\ - 18\frac{1}{9} \\ \hline 16\frac{8}{9} \end{array}$$

$$\begin{array}{r} 4. \quad 16\frac{3}{8} \\ - 7\frac{5}{8} \\ \hline 9\frac{3}{4} \end{array}$$

$$\begin{array}{r} 5. \quad 14\frac{2}{3} \\ - 7\frac{7}{8} \\ \hline 13\frac{19}{24} \end{array}$$

$$\begin{array}{r} 6. \quad 19 \\ - 7\frac{3}{8} \\ \hline 11\frac{5}{8} \end{array}$$

$$\begin{array}{r} 7. \quad 11\frac{3}{8} \\ - 5\frac{9}{16} \\ \hline 5\frac{13}{16} \end{array}$$

$$\begin{array}{r} 8. \quad 14\frac{1}{2} \\ - 6\frac{7}{8} \\ \hline 7\frac{5}{8} \end{array}$$

$$\begin{array}{r} 9. \quad 16\frac{1}{8} \\ - 3\frac{1}{9} \\ \hline 13\frac{1}{72} \end{array}$$

$$\begin{array}{r} 10. \quad 35\frac{2}{3} \\ - 16\frac{4}{5} \\ \hline 18\frac{13}{15} \end{array}$$

$$\begin{array}{r} 11. \quad 19 \\ - 12\frac{3}{8} \\ \hline 6\frac{3}{8} \end{array}$$

$$\begin{array}{r} 12. \quad 12\frac{3}{8} \\ - 9 \\ \hline 3\frac{3}{8} \end{array}$$

$$\begin{array}{r} 13. \quad 60\frac{1}{8} \\ - 16\frac{1}{7} \\ \hline 43\frac{55}{56} \end{array}$$

$$\begin{array}{r} 14. \quad 63\frac{8}{9} \\ - 19\frac{1}{2} \\ \hline 44\frac{7}{8} \end{array}$$

$$\begin{array}{r} 15. \quad 60\frac{1}{4} \\ - 11\frac{3}{5} \\ \hline 49\frac{13}{20} \end{array}$$

$$\begin{array}{r} 16. \quad 40\frac{3}{8} \\ - 19\frac{3}{8} \\ \hline 21 \end{array}$$

$$17. \quad 8\frac{1}{6} - 6\frac{2}{3} = 1\frac{1}{2}$$

$$18. \quad 35\frac{1}{6} - 16\frac{3}{8} = 18\frac{19}{24}$$

$$19. \quad 17\frac{5}{8} - 3\frac{1}{3} = 14\frac{7}{24}$$

$$20. \quad 35 - 27\frac{1}{9} = 7\frac{8}{9}$$

$$21. \quad 26 - 8\frac{7}{8} = 17\frac{1}{8}$$

$$22. \quad 11\frac{7}{8} - 10\frac{8}{9} = 7\frac{1}{72}$$

$$23. \quad 46\frac{5}{7} - 39\frac{3}{4} = 6\frac{27}{28}$$

$$24. \quad 57\frac{2}{3} - 28\frac{4}{5} = 28\frac{13}{15}$$

$$25. \quad 8\frac{1}{9} - \frac{2}{3} = 7\frac{4}{9}$$

Pg #47

Adding and Subtracting Mixed Numbers

When the denominators are different,
find the least common multiple.
In this case, 8.

$$3\frac{1}{4} + 1\frac{3}{8} = 3\frac{2}{8} + 1\frac{3}{8} = 4\frac{5}{8}$$

$$1. 4\frac{5}{8} - 2\frac{2}{6} = 2\frac{7}{24} \quad 7. 9\frac{3}{5} + 4\frac{2}{3} = 14\frac{4}{15} \quad 13. 7\frac{1}{2} - 2\frac{7}{10} = 4\frac{4}{5}$$

$$2. 8\frac{1}{6} + 5\frac{3}{4} = 13\frac{11}{12} \quad 8. 16\frac{1}{3} - 7\frac{5}{8} = 8\frac{17}{24} \quad 14. 6\frac{2}{7} - 1\frac{1}{3} = 4\frac{20}{21}$$

$$3. 3\frac{7}{12} + 7\frac{5}{6} = 11\frac{5}{12} \quad 9. 4\frac{1}{8} - 3\frac{1}{2} = \frac{5}{8} \quad 15. 17\frac{3}{4} - 8\frac{2}{5} = 9\frac{7}{20}$$

$$4. 12 - 3\frac{1}{5} = 8\frac{4}{5} \quad 10. 12\frac{7}{9} + 3\frac{2}{3} = 16\frac{4}{9} \quad 16. 6\frac{4}{5} + 2\frac{3}{8} = 9\frac{7}{40}$$

$$5. 1\frac{9}{10} - 1\frac{3}{4} = \frac{3}{20} \quad 11. 4\frac{8}{9} + 2\frac{5}{6} = 7\frac{13}{18} \quad 17. 11\frac{4}{5} - 3\frac{5}{6} = 7\frac{29}{30}$$

$$6. 5\frac{1}{2} - 2\frac{2}{7} = 3\frac{3}{14} \quad 12. 3\frac{8}{12} - 1\frac{5}{18} = 2\frac{7}{18} \quad 18. 4\frac{3}{6} + 7\frac{3}{8} = 11\frac{7}{8}$$

Multiplying Fractions

$$1\frac{2}{3} \cdot 2\frac{1}{2} = \overset{\text{rewrite}}{\frac{5}{3}} \cdot \underset{\text{rewrite}}{\frac{5}{2}} = \frac{25}{6} \text{ or } 4\frac{1}{6}$$

$$1. \frac{3}{5} \cdot \frac{15}{18} = \frac{1}{2} \quad 7. 4\frac{4}{7} \cdot 1\frac{3}{4} = 8 \quad 13. 4\frac{5}{6} \cdot 5\frac{1}{7} = 24\frac{6}{7}$$

$$2. \frac{2}{3} \cdot \frac{21}{24} = \frac{7}{12} \quad 8. 8\frac{1}{3} \cdot 6\frac{3}{5} = 55 \quad 14. 12\frac{2}{3} \cdot 7\frac{1}{2} = 95$$

$$3. 5\frac{1}{2} \cdot \frac{2}{11} = 1 \quad 9. 3\frac{1}{5} \cdot 12\frac{1}{2} = 40 \quad 15. 5\frac{2}{3} \cdot 8\frac{1}{4} = 46\frac{3}{4}$$

$$4. 7\frac{2}{7} \cdot 2\frac{1}{3} = 17 \quad 10. 1\frac{1}{2} \cdot 3\frac{1}{5} = 4\frac{4}{5} \quad 16. 10\frac{2}{3} \cdot 7\frac{1}{8} = 76$$

$$5. 5\frac{3}{5} \cdot 2\frac{1}{7} = 12 \quad 11. 9\frac{1}{3} \cdot 2\frac{1}{7} = 20 \quad 17. 2\frac{4}{7} \cdot 2\frac{3}{9} = 6$$

$$6. 3\frac{12}{13} \cdot 4\frac{1}{3} = 17 \quad 12. 2\frac{3}{4} \cdot 1\frac{1}{3} = 3\frac{2}{3} \quad 18. 5\frac{3}{12} \cdot 2\frac{1}{7} = 6\frac{3}{4}$$

Skill #10

Name _____

Fractions

Multiplying Fractions

$$\begin{array}{c} \text{rewrite} \\ 2\frac{1}{3} \cdot 1\frac{1}{2} = \frac{7}{3} \cdot \frac{3}{2} = \frac{21}{6} \text{ or } 3\frac{3}{6} \text{ or } 3\frac{1}{2} \\ \text{rewrite} \end{array}$$

1. $12\frac{1}{2} \cdot 8\frac{2}{5} = 105$ 7. $3\frac{1}{3} \cdot 9\frac{3}{4} = 32\frac{1}{2}$ 13. $8\frac{2}{5} \cdot 3\frac{4}{7} = 30$

2. $8\frac{3}{4} \cdot 1\frac{3}{7} = 12\frac{1}{2}$ 8. $7\frac{1}{3} \cdot 4\frac{1}{2} = 33$ 14. $15\frac{3}{4} \cdot 6\frac{2}{7} = 99$

3. $13\frac{1}{3} \cdot 2\frac{2}{5} = 32$ 9. $6\frac{2}{9} \cdot 3\frac{6}{8} = 23\frac{1}{3}$ 15. $8\frac{4}{5} \cdot 2\frac{5}{10} = 22$

4. $5\frac{5}{7} \cdot 9\frac{4}{5} = 56$ 10. $3\frac{3}{5} \cdot 2\frac{7}{9} = 10$ 16. $10\frac{1}{2} \cdot 7\frac{1}{3} = 77$

5. $7\frac{1}{8} \cdot 9\frac{1}{3} = 66\frac{1}{2}$ 11. $3\frac{8}{9} \cdot 5\frac{2}{5} = 21$ 17. $5\frac{4}{9} \cdot 2\frac{4}{7} = 14$

6. $4\frac{2}{3} \cdot 7\frac{1}{2} = 35$ 12. $4\frac{7}{12} \cdot 6\frac{2}{5} = 29\frac{1}{3}$ 18. $11\frac{2}{3} \cdot 4\frac{4}{5} = 56$

Multiply.

1. $16 \times 2\frac{5}{8} = \underline{42}$

2. $3\frac{6}{7} \times 14 = \underline{54}$

3. $4 \times 3\frac{3}{4} = \underline{15}$

4. $6 \times 1\frac{2}{3} = \underline{10}$

5. $24 \times 3\frac{1}{8} = \underline{75}$

6. $7\frac{1}{3} \times 15 = \underline{110}$

7. $7\frac{1}{5} \times \frac{2}{9} = \underline{1\frac{3}{5}}$

8. $8\frac{1}{2} \times 15 = \underline{127\frac{1}{2}}$

9. $5\frac{1}{4} \times \frac{4}{5} = \underline{4\frac{1}{5}}$

10. $\frac{2}{3} \times 4\frac{5}{7} \times \frac{7}{10} = \underline{2\frac{1}{5}}$

11. $3\frac{3}{5} \times 1\frac{1}{9} \times 2\frac{3}{4} = \underline{11}$

12. $\frac{7}{8} \times \frac{5}{7} \times 3\frac{6}{7} = \underline{2\frac{23}{56}}$

13. $6\frac{3}{4} \times \frac{4}{5} \times \frac{2}{9} = \underline{1\frac{1}{5}}$

Give the reciprocal of each number.

14. $\frac{4}{9}$

$\underline{\frac{9}{4}}$

15. 7

$\underline{\frac{1}{7}}$

16. $4\frac{1}{5}$

$\underline{\frac{5}{21}}$

17. $2\frac{1}{3}$

$\underline{\frac{3}{7}}$

Solve the problem.

18. Bret can swim the length of a pool in $1\frac{1}{10}$ minutes. How long will it take him to swim 4 lengths of the pool?

$\underline{4\frac{2}{5} \text{ minutes}}$

Maintenance

Multiply.

1. $\frac{3}{8} \times 7 = 2\frac{5}{8}$

2. $\frac{1}{16} \times 8 = \frac{1}{2}$

3. $\frac{2}{3} \times \frac{12}{15} = \frac{8}{15}$

4. $\frac{3}{4} \times \frac{7}{8} = \frac{21}{32}$

5. $\frac{8}{9} \times \frac{11}{12} = \frac{22}{27}$

6. $\frac{7}{16} \times 8 = 3\frac{1}{2}$

7. $\frac{2}{3} \times \frac{3}{2} = 1$

8. $\frac{4}{7} \times \frac{8}{7} = \frac{32}{49}$

9. $\frac{4}{7} \times \frac{7}{8} = \frac{1}{2}$

10. $\frac{2}{5} \times \frac{3}{4} = \frac{3}{10}$

11. $4\frac{1}{2} \times 8 = 36$

12. $9\frac{7}{10} \times \frac{5}{6} = 8\frac{1}{2}$

13. $3\frac{1}{2} \times \frac{1}{7} = \frac{1}{2}$

14. $5\frac{5}{8} \times 6 = 33\frac{3}{4}$

15. $8\frac{1}{4} \times 12 = 99$

16. $2\frac{1}{3} \times 2\frac{1}{3} = 5\frac{4}{9}$

17. $1\frac{3}{8} \times 2\frac{1}{3} = 3\frac{5}{24}$

18. $\frac{3}{8} \times \frac{8}{7} \times \frac{3}{9} = \frac{1}{7}$

19. $12 \times \frac{1}{2} \times \frac{3}{5} = 3\frac{3}{5}$

Pg. #52

Dividing Fractions

$1\frac{2}{3} \div 2\frac{1}{2} = \frac{5}{3} \div \frac{5}{2} = \frac{5}{3} \cdot \frac{2}{5} = \frac{2}{3}$ rewrite invert and multiply
--

$$1. \quad 6\frac{2}{3} \div 3\frac{4}{12}$$

2

$$7. \quad 3\frac{1}{3} \div 1\frac{5}{9}$$

$2\frac{1}{3}$

$$13. \quad 2\frac{7}{10} \div 3\frac{9}{15}$$

$\frac{3}{4}$

$$2. \quad 4\frac{1}{2} \div 5\frac{1}{4}$$

$\frac{6}{7}$

$$8. \quad 4\frac{3}{8} \div 2\frac{1}{12}$$

$2\frac{1}{10}$

$$14. \quad 2\frac{2}{6} \div 4\frac{2}{3}$$

$\frac{1}{2}$

$$3. \quad 2\frac{2}{9} \div 4\frac{1}{6}$$

$\frac{8}{15}$

$$9. \quad 9\frac{2}{7} \div 2\frac{2}{14}$$

$4\frac{1}{3}$

$$15. \quad 3\frac{1}{2} \div 4\frac{1}{3}$$

$\frac{5}{6}$

$$4. \quad 6\frac{2}{3} \div 4\frac{4}{9}$$

$1\frac{1}{2}$

$$10. \quad 7\frac{1}{5} \div 3\frac{3}{5}$$

2

$$16. \quad 3\frac{3}{4} \div 1\frac{2}{3}$$

$2\frac{1}{4}$

$$5. \quad 8\frac{3}{4} \div 2\frac{1}{2}$$

$3\frac{1}{2}$

$$11. \quad 7\frac{3}{4} \div 1\frac{1}{4}$$

$6\frac{1}{5}$

$$17. \quad 9\frac{4}{5} \div 1\frac{4}{10}$$

7

$$6. \quad 7\frac{3}{5} \div 1\frac{9}{10}$$

4

$$12. \quad 5\frac{2}{5} \div 4\frac{1}{2}$$

$1\frac{1}{5}$

$$18. \quad 3\frac{1}{5} \div 1\frac{6}{10}$$

2

Dividing Fractions

$1\frac{2}{3} \div 2\frac{1}{2} = \frac{5}{3} \div \frac{5}{2} = \frac{5}{3} \cdot \frac{2}{5} = \frac{2}{3}$
$\xrightarrow{\text{rewrite}}$ $\xrightarrow{\text{invert and multiply}}$ $\xrightarrow{\text{rewrite}}$

$$1. 7\frac{4}{5} \div 1\frac{3}{10}$$

6

$$7. 9\frac{1}{6} \div 3\frac{8}{12}$$

$2\frac{1}{2}$

$$13. 7\frac{1}{2} \div 8\frac{3}{4}$$

$6\frac{6}{7}$

$$2. 5\frac{1}{2} \div 8\frac{4}{5}$$

$5\frac{5}{8}$

$$8. 11\frac{3}{7} \div 5\frac{10}{14}$$

2

$$14. 9\frac{1}{5} \div 2\frac{3}{10}$$

4

$$3. 9\frac{2}{7} \div 3\frac{3}{14}$$

$2\frac{8}{9}$

$$9. 7\frac{1}{9} \div 2\frac{2}{3}$$

$2\frac{2}{3}$

$$15. 12\frac{4}{5} \div 1\frac{1}{15}$$

12

$$4. 8\frac{2}{5} \div 2\frac{1}{10}$$

4

$$10. 9\frac{3}{5} \div 1\frac{6}{10}$$

6

$$16. 10\frac{4}{5} \div 1\frac{8}{10}$$

6

$$5. 3\frac{5}{7} \div 3\frac{15}{21}$$

1

$$11. 12\frac{3}{5} \div 2\frac{7}{10}$$

$4\frac{2}{3}$

$$17. 13\frac{3}{4} \div 5\frac{1}{2}$$

$2\frac{1}{2}$

$$6. 8\frac{2}{7} \div 2\frac{1}{14}$$

4

$$12. 8\frac{1}{3} \div 4\frac{1}{6}$$

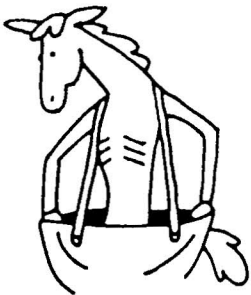
2

$$18. 3\frac{3}{4} \div 3\frac{1}{8}$$

$1\frac{1}{5}$

What is a young, skinny horse?

To find out, divide. Find each answer below.
Cross out the letter in the box. The remaining letters answer the riddle.
Some answers are used more than once.



1. $4 \div \frac{3}{5} = 6\frac{2}{3}$
2. $9 \div \frac{3}{4} = 12$
3. $\frac{3}{8} \div \frac{5}{16} = 1\frac{1}{5}$
4. $\frac{3}{4} \div \frac{8}{9} = \frac{27}{32}$
5. $\frac{1}{2} \div \frac{5}{8} = \frac{4}{5}$
6. $9 \div \frac{1}{2} = 18$
7. $\frac{3}{7} \div \frac{3}{5} = \frac{5}{7}$
8. $7 \div 4\frac{1}{5} = 1\frac{2}{3}$
9. $8 \div 3 = 2\frac{2}{3}$
10. $\frac{5}{8} \div 2\frac{1}{2} = \frac{1}{4}$
11. $7\frac{7}{9} \div 1\frac{1}{9} = 7$
12. $8\frac{2}{3} \div 1\frac{5}{8} = 5\frac{1}{3}$
13. $23\frac{1}{3} \div 8\frac{4}{7} = 2\frac{13}{18}$
14. $6\frac{3}{7} \div 5\frac{5}{7} = 1\frac{1}{8}$
15. $8\frac{2}{11} \div 4\frac{2}{7} = 1\frac{10}{11}$

$1\frac{10}{11}$	$3\frac{1}{3}$	$\frac{5}{7}$	$\frac{27}{32}$	$\frac{1}{4}$	6	$8\frac{2}{5}$	$6\frac{3}{4}$	15	$6\frac{2}{3}$	12	7	$\frac{4}{5}$
F	A	R	E	E	B	O	N	Y	S	A	A	T
$1\frac{1}{5}$	$2\frac{2}{3}$	$6\frac{2}{3}$	$15\frac{1}{8}$	3	$6\frac{1}{9}$	16	$1\frac{10}{11}$	$5\frac{1}{3}$	$1\frac{1}{8}$	18	$2\frac{13}{18}$	$1\frac{2}{3}$
S	T	O	P	O	N	Y	E	T	I	M	E	S

Pg#55

Maintenance

Add, subtract, multiply, or divide.

1. $\frac{5}{6} - \frac{1}{3} = \underline{\frac{1}{2}}$

2. $\frac{3}{4} \div \frac{2}{3} = \underline{1\frac{1}{8}}$

3. $\frac{47}{49} + \frac{1}{7} = \underline{1\frac{5}{49}}$

4. $5\frac{6}{7} \times \frac{2}{5} = \underline{2\frac{12}{35}}$

5. $3\frac{3}{4} \times \frac{2}{7} = \underline{1\frac{1}{14}}$

6. $\frac{13}{35} + 4\frac{5}{7} = \underline{5\frac{3}{35}}$

7. $2\frac{1}{8} \div \frac{7}{8} = \underline{2\frac{3}{7}}$

8. $4\frac{1}{5} - 3\frac{1}{2} = \underline{\frac{7}{10}}$

9. $1\frac{4}{5} \times 2\frac{2}{3} = \underline{4\frac{4}{5}}$

10. $3\frac{5}{8} + \frac{23}{24} = \underline{4\frac{7}{12}}$

11. $5\frac{1}{3} - 4\frac{2}{3} = \underline{\frac{2}{3}}$

12. $4\frac{4}{5} \div \frac{6}{5} = \underline{4}$

13. $4\frac{1}{7} - \frac{8}{9} = \underline{3\frac{16}{63}}$

14. $\frac{5}{6} \times \frac{7}{8} = \underline{\frac{35}{48}}$

15. $8\frac{1}{2} + 9\frac{3}{4} = \underline{18\frac{1}{4}}$

16. $\frac{7}{10} \times \frac{7}{10} = \underline{\frac{49}{100}}$

17. $8\frac{1}{2} \div \frac{3}{7} = \underline{19\frac{5}{6}}$

18. $2\frac{5}{6} \times \frac{8}{7} = \underline{3\frac{5}{21}}$

19. $\frac{9}{10} + \frac{3}{25} + \frac{33}{50} = \underline{1\frac{17}{25}}$

20. $\frac{29}{60} + \frac{3}{4} + \frac{5}{12} = \underline{1\frac{13}{20}}$

Pg. #5

Find each answer.

1. 62% of 90 is 55.8
2. 40% of 120 is 48
3. 100% of 84 is 84
4. 15% of 34 is 5.1
5. $63\frac{1}{2}\%$ of 55 is 34.925
6. 300% of 40 is 120
7. 110% of 19 is 20.9
8. 65% of 9 is 5.85
9. $18\frac{1}{2}\%$ of 40 is 7.4
10. $15\frac{1}{4}\%$ of 20 is 3.05
11. 87% of 18 is 15.66
12. $55\frac{1}{3}\%$ of 24 is 13.28
13. What is 0.3% of 478? 1.434
14. What is $5\frac{1}{4}\%$ of 132? 6.93
15. 0.9% of 2,100 is what number? 18.9

Estimate each answer.

16. 33% of 39 is about 13
17. $66\frac{2}{3}\%$ of 48 is about 32
18. 24% of 64 is about 16
19. 18% of 80 is about 14

Pg #57

Find 130% of 62.

$$130\% \text{ of } 62 = n$$

$$1.3 \times 62 = n$$

$$80.6 = n$$

$$130\% = 1.3$$

Write an equation.

Equivalents

$$12.5\% = \frac{1}{8}$$

$$16\frac{2}{3}\% = \frac{1}{6}$$

$$33\frac{1}{3}\% = \frac{1}{3}$$

$$37.5\% = \frac{3}{8}$$

$$50\% = \frac{1}{2}$$

$$66\frac{2}{3}\% = \frac{2}{3}$$

$$75\% = \frac{3}{4}$$

Find $33\frac{1}{3}\%$ of 57.

$$33\frac{1}{3}\% \text{ of } 57 = n$$

$$\frac{1}{3} \times 57 = n$$

$$19 = n$$

$$33\frac{1}{3}\% = \frac{1}{3}$$

Write an equation.

Find each answer.

1. 50% of 80

40

2. 35% of 60

21

3. 200% of 16

32

4. 425% of 50

212.5

5. $33\frac{1}{3}\%$ of 24

8

6. 12.5% of 56

7

7. $16\frac{2}{3}\%$ of 96

16

8. $66\frac{2}{3}\%$ of 45

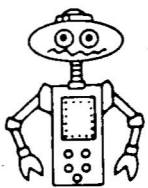
30

9. 126% of 72

90.72

10. 37.5% of 88

33



Cross off your answers. They are all here.

7	90.72	40	33	16
32	8	212.5	21	30

Find each percent.

1. 18 is what percent of 30?

60%

2. 14 is what percent of 35?

40%

3. 8 is what percent of 20?

40%

4. 32 is what percent of 50?

64%

5. 23 is what percent of 10?

230%

6. 9 is what percent of 5?

180%

7. What percent of 115 is 322?

280%

8. What percent of 450 is 18?

4%

9. What percent of 30 is 12?

40%

10. What percent of 118 is 531?

450%

11. What percent of 240 is 48?

20%

12. What percent of 44 is 11?

25%

13. 10.9 is what percent of 43.6?

25%

14. 83.2 is what percent of 320?

25%

15. What percent of 55.6 is 65.9?

118.5%

16. What percent of 42 is 74.9?

178 $\frac{1}{3}$ %

What percent of 30 is 21?

?% of 30 is 21.

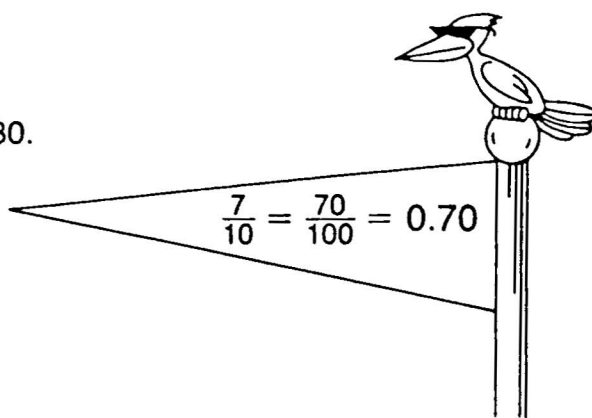
$n \times 30 = 21$ Write an equation.

$\frac{n \times 30}{30} = \frac{21}{30}$ Divide both sides by 30.

$n = \frac{21}{30}$

$n = \frac{7}{10} = 70\%$

21 is 70% of 30.



Write an equation for each sentence.

1. What percent of 50 is 10?

n% of 50 is 10.

$n \cdot 50 = 10$

2. What percent of 72 is 60?

n% of 72 is 60.

$n \cdot 72 = 60$

3. 8 is what percent of 200?

8 is n% of 200.

$8 = n \cdot 200$

4. 125 is what percent of 200?

125 is n% of 200.

$125 = n \cdot 200$

Find each percent.

5. What percent of 80 is 28?

n% of 80 is 28.

$n = 35\%$

6. What percent of 250 is 100?

n% of 250 is 100.

$n = 40\%$

7. 12 is what percent of 24?

12 is n% of 24.

$n = 50\%$

8. 3 is what percent of 30?

3 is n% of 30.

$n = 10\%$

48% of what number is 60?

$$\begin{array}{ccccccc} 48\% & \text{of} & ? & \text{is} & 60 & & \\ \downarrow & \downarrow & & \downarrow & & & \\ 0.48 & \times & n & = & 60 & & \end{array}$$

Write an equation.

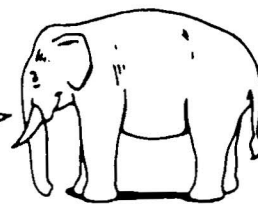
$$\frac{0.48 \times n}{0.48} = \frac{60}{0.48}$$

Divide both sides by 0.48.

$$n = \frac{60}{0.48}$$

$$n = 125$$

Remember:
48% = 0.48



48% of 125 is 60.

Write an equation for each sentence.

1. 10% of what number is 40?

$$10\% \text{ of } n \text{ is } 40.$$

$$0.10 \cdot n = 40$$

2. 5% of what number is 35?

$$5\% \text{ of } n \text{ is } 35.$$

$$0.05 \cdot n = 35$$

3. 20% of what number is 1.6?

$$20\% \text{ of } n \text{ is } 1.6.$$

$$0.20 \cdot n = 1.6$$

4. 45% of what number is 4.14?

$$45\% \text{ of } n \text{ is } 4.14.$$

$$0.45 \cdot n = 4.14$$

Find each number.

5. 50% of what number is 18?

$$50\% \text{ of } n \text{ is } 18.$$

$$n = 36$$

6. 4% of what number is 6?

$$4\% \text{ of } n \text{ is } 6.$$

$$n = 150$$

7. 27 is 30% of what number?

$$27 \text{ is } 30\% \text{ of } n.$$

$$n = 90$$

8. 10 is 20% of what number?

$$10 \text{ is } 20\% \text{ of } n.$$

$$n = 50$$

Compare these integers. Use $>$ or $<$.

1. $7 < 9$

2. $4 > 2$

3. $1 > -3$

4. $-32 < 2$

5. $0 > -2$

6. $4 > -13$

7. $-3 > -5$

8. $0 < 1$

9. $0 > -1$

10. $-3 < 0$

11. $14 > -14$

12. $-36 > -48$

13. $-4 < -1$

14. $12 > -14$

15. $-9 < 6$

16. $22 < 23$

List these integers in order from least to greatest.

17. $4 \quad -4 \quad 2$

-4 2 4

18. $0 \quad -3 \quad 6$

-3 0 6

19. $-3 \quad -6 \quad 0$

-6 -3 0

20. $0 \quad -6 \quad 2$

-6 0 2

21. $17 \quad -17 \quad 8 \quad -3$

-17 -3 8 17

22. $-23 \quad 0 \quad 18 \quad -14$

-23 -14 0 18

23. $-40 \quad 20 \quad -9 \quad 5$

-40 -9 5 20

The table shows temperatures taken at different times on a winter day in a northern city.

24. When did the highest temperatures occur, *morning* or *afternoon*?

Afternoon

Degrees Fahrenheit	
2:00 A.M.	-12
7:00 A.M.	-8
12:00 NOON	-3
5:00 P.M.	6

Maintenance

Compare these integers. Use $<$ or $>$.

1. $5 < 10$

2. $3 > -2$

3. $-5 < 0$

4. $-2 > -3$

5. $0 < 8$

6. $1 > -5$

7. $-15 > -21$

8. $-82 < -2$

List these integers in order from least to greatest.

9. 2 -2 7

-2 2 7

10. -5 -7 3

-7 -5 3

11. 0 -1 1

-1 0 1

12. 2 -8 -14

-14 -8 2

13. 5 7 2

2 5 7

14. -7 0 11

-7 0 11

15. -1 49 -371 -190 -5 0 126 -11

-371 -190 -11 -5 -1 0 49 126

16. -5 6 40 -7 -100 -30 0 270

-100 -30 -7 -5 0 6 40 270

17. Which is less, -38 or -42? -42

18. Which is more, 16 or 15? 16

19. Which is less, -24 or -14? -24

20. Which is more, -32 or -33? -32

Pg. #63

Add. Circle your answer in the chart below. Keep working exercises until you have circled six in a row, horizontally, vertically, or diagonally.

1. $14 + (-20) = -6$

2. $-7 + 9 = 2$

3. $8 + (-3) = 5$

4. $-9 + 9 = 0$

5. $0 + (-8) = -8$

6. $-15 + 8 = -7$

7. $17 + (-7) = 10$

8. $-12 + 8 = -4$

9. $13 + (-7) = 6$

10. $-9 + 22 = 13$

11. $-9 + (-9) = -18$

12. $16 + (-2) = 14$

13. $-12 + (-2) = -14$

14. $-32 + 27 = -5$

15. $16 + (-32) = -16$

16. $-10 + 28 + (-7) = 11$

17. $-19 + 21 + 15 + (-5) = 12$

5	15	-21	-18	-2	13
23	0	-17	7	-5	-20
8	-10	-8	-49	-11	2
-13	11	-9	-7	98	52
-16	14	-40	9	-6	-52
-4	-14	10	-62	6	12

Pg#64

Subtract.

1. $-4 - (4) = -8$

2. $8 - (-7) = 15$

3. $-9 - (-9) = 0$

4. $-25 - (-5) = -20$

5. $37 - 22 = 15$

6. $-8 - (-12) = 4$

7. $9 - (-4) = 13$

8. $-17 - 20 = -37$

9. $15 - 42 = -27$

10. $24 - (-10) = 34$

11. $67 - (-66) = 133$

12. $-36 - (-9) = -27$

13. $6 - 26 = -20$

14. $-22 - 15 = -37$

15. $-32 - (-36) = 4$

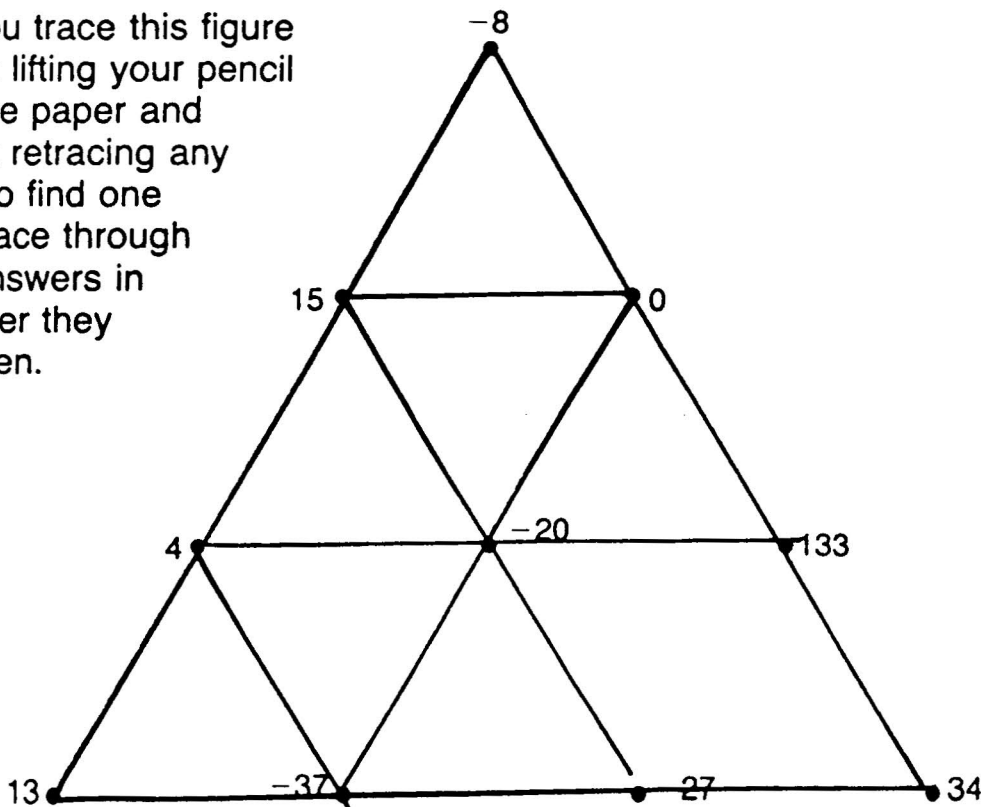
16. $32 - 54 - (-2) = -20$

17. $61 - (-50) + 22 = 133$

18. $-4 - 8 - (-12) = 0$

19. $-38 - 21 - (-51) = -8$

Can you trace this figure without lifting your pencil from the paper and without retracing any line? To find one way, trace through your answers in the order they are given.



Adding & Subtracting Integers

Simplify each subtraction expression by "adding the Opposite" of the second number.

1. $-8 + -9 = -17$

13. $-24 - (-38) = 14$

2. $-10 - 4 = -14$

14. $0 - 17 = -17$

3. $-15 + 20 = 5$

15. $-56 - 45 = -101$

4. $31 - (-8) = 39$

16. $73 + -18 = 55$

5. $-17 + 9 = -8$

17. $-232 - (-232) = 0$

6. $-9 - (-26) = 17$

18. $-108 + -676 = -784$

7. $-78 - 65 = -143$

19. $43 + -56 - 78 = -91$

8. $13 + -7 = 6$

20. $-98 - (-126) + 19 = 47$

9. $113 - (-62) = 175$

21. $91 - 176 - (-11) = -74$

10. $0 - (-9) = 9$

22. $-17 + 436 + -642 = -223$

11. $34 + -68 = -34$

23. $-121 + -732 - (-13) = -840$

12. $608 - 343 = 265$

24. $-534 - (-454) + -78 = -158$

Mixed Practice with Integers

Perform the indicated operations.

1. $-34 + -122$

-156

2. $80 - (-22)$

102

3. $-3 \cdot 5$

-15

4. $19 \cdot -23$

-437

5. $83 + -85$

-2

6. $28 - (-65)$

93

7. $28 - (-26)$

54

8. $-31 - (-21)$

-10

9. $-35 + 62 + -90$

-63

10. $12 \cdot -13 \cdot 6$

-936

11. $(212 + -234 - 222) \div -6$

$40 \frac{2}{3}$

12. $100 \cdot 3 \cdot 21$

$6,300$

13. $\frac{175}{-5} \cdot -4$

140

14. $\frac{-555}{-5} \cdot -6$

-666

15. $\frac{-424}{4}$

-106

16. $\frac{-72}{8} + \frac{-64}{8} + \frac{33}{-11}$

$-22 \frac{2}{3}$

17. $(225 \div 5) \cdot .2$

90

18. $(-19 - (-21) - (-34)) \div -6$

-6

19. $(-18 - -77 - 22) \cdot 2$

74

20. $(10 + -31 + -80) \div 3$

$-33 \frac{2}{3}$

21. $(16 - 21 + 34) \div -8$

$-3 \frac{5}{8}$

22. $(-320 + -75 + 24) \cdot 4$

$-1,484$

23. $(-12 + 13 + 55) \cdot 3$

168

24. $(-12 - 54 - 10) \cdot 2$

-152

Maintenance

Give each answer.

1. $-2(15) = -30$

2. $-15 \div (-3) = 5$

3. $15 - 35 = -20$

4. $12(2) = 24$

5. $0(-88) = 0$

6. $9 \div (-3) = -3$

7. $\frac{44}{4} = 11$

8. $\frac{56}{-7} = -8$

9. $0 - 89 = -89$

10. $-72 \div 9 = -8$

11. $5 - (-2) = 7$

12. $\frac{125}{-5} = -25$

13. $\frac{-48}{6} = -8$

14. $0 - (-3) = 3$

15. $5 - (-2) = 7$

16. $38 - (5 + 2) = 31$

17. $(2)(-5)(0)(56) = 0$

18. $15 + (-7) - (-18) - 17 = 9$

19. $14 - (-10) - 18 - (-2) = 8$

20. $-3(4)(-2)(-1) = -24$

21. $6 - (-7 + 6) = 7$

22. $32 + (-32) - 32 = -32$

23. $32 \div (-32) = -1$

24. $27 - (-5) - 11 = 21$

25. $(-3)(-12)(2) = 72$

Pg. #68

Combine Like Terms

$$9x + 7y + -21x = -12x + 7y$$

Combine like terms.

1. $5x + 7x = 12x$

11. $4.7x - 5.9x = -1.2x$

2. $19x + x = 20x$

12. $7s + 5x - 8s = s + 5x$

3. $k - (-8k) = 9k$

13. $4a + 9 + a = 5a + 9$

4. $-12x + -4x = -16x$

14. $5x - 6y - 8y + 7x = 12x - 14y$

5. $13c - 12c = c$

15. $23x + 8 + 6x + 3y = 29x + 3y + 8$

6. $-e + 8e = 7e$

16. $4xy + 7xy + 6x^2y + 7xy^2 =$
 $11xy + 6x^2y + 7xy^2$

7. $3yz + 5yz = 8yz$

17. $-21x + 7y + 6xy + -3y^2 =$
 $4x - y + 3xy$

8. $-12n - -13n = n$

18. $4x + 3y + -5y + 3xy + y$
 $4x - y + 3xy$

9. $12b + -34b = -22b$

19. $2xy + 7x + 6xy + 3xy + -3x$
 $11xy + 4x$

10. $13ab + (-12ab) = ab$

20. $4x^2 + -7y + -4xy + 9x^2 + 2xy$
 $13x^2 - 7y - 2xy$

Find each answer.

1. 62% of 90 is 55.8
2. 40% of 120 is 48
3. 100% of 84 is 84
4. 15% of 34 is 5.1
5. $63\frac{1}{2}\%$ of 55 is 34.925
6. 300% of 40 is 120
7. 110% of 19 is 20.9
8. 65% of 9 is 5.85
9. $18\frac{1}{2}\%$ of 40 is 7.4
10. $15\frac{1}{4}\%$ of 20 is 3.05
11. 87% of 18 is 15.66
12. $55\frac{1}{3}\%$ of 24 is 13.28
13. What is 0.3% of 478? 1.434
14. What is $5\frac{1}{4}\%$ of 132? 6.93
15. 0.9% of 2,100 is what number? 18.9

Estimate each answer.

16. 33% of 39 is about 13
17. $66\frac{2}{3}\%$ of 48 is about 32
18. 24% of 64 is about 16
19. 18% of 80 is about 14

Pg #57

Find 130% of 62.

$$130\% \text{ of } 62 = n$$

$$1.3 \times 62 = n$$

$$80.6 = n$$

$$130\% = 1.3$$

Write an equation.

Equivalents

$$12.5\% = \frac{1}{8}$$

$$16\frac{2}{3}\% = \frac{1}{6}$$

$$33\frac{1}{3}\% = \frac{1}{3}$$

$$37.5\% = \frac{3}{8}$$

$$50\% = \frac{1}{2}$$

$$66\frac{2}{3}\% = \frac{2}{3}$$

$$75\% = \frac{3}{4}$$

Find $33\frac{1}{3}\%$ of 57.

$$33\frac{1}{3}\% \text{ of } 57 = n$$

$$\frac{1}{3} \times 57 = n$$

$$19 = n$$

$$33\frac{1}{3}\% = \frac{1}{3}$$

Write an equation.

Find each answer.

1. 50% of 80

40

2. 35% of 60

21

3. 200% of 16

32

4. 425% of 50

212.5

5. $33\frac{1}{3}\%$ of 24

8

6. 12.5% of 56

7

7. $16\frac{2}{3}\%$ of 96

16

8. $66\frac{2}{3}\%$ of 45

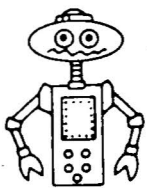
30

9. 126% of 72

90.72

10. 37.5% of 88

33



Cross off your answers. They are all here.

7	90.72	40	33	16
32	8	212.5	21	30

Find each percent.

1. 18 is what percent of 30?

60%

2. 14 is what percent of 35?

40%

3. 8 is what percent of 20?

40%

4. 32 is what percent of 50?

64%

5. 23 is what percent of 10?

230%

6. 9 is what percent of 5?

180%

7. What percent of 115 is 322?

280%

8. What percent of 450 is 18?

4%

9. What percent of 30 is 12?

40%

10. What percent of 118 is 531?

450%

11. What percent of 240 is 48?

20%

12. What percent of 44 is 11?

25%

13. 10.9 is what percent of 43.6?

25%

14. 83.2 is what percent of 320?

25%

15. What percent of 55.6 is 65.9?

118.5%

16. What percent of 42 is 74.9?

178 $\frac{1}{3}$ %

What percent of 30 is 21?

?% of 30 is 21.

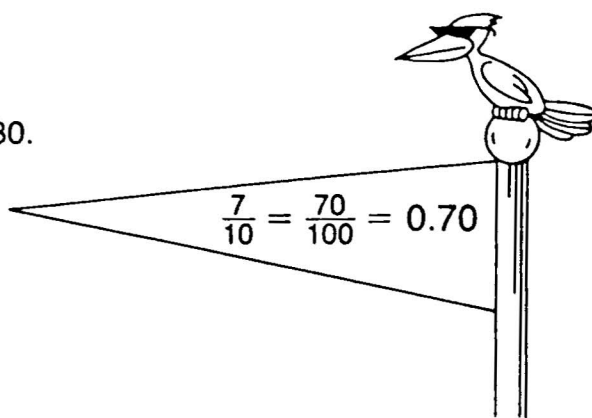
$n \times 30 = 21$ Write an equation.

$\frac{n \times 30}{30} = \frac{21}{30}$ Divide both sides by 30.

$n = \frac{21}{30}$

$n = \frac{7}{10} = 70\%$

21 is 70% of 30.



Write an equation for each sentence.

1. What percent of 50 is 10?

n% of 50 is 10.

$n \cdot 50 = 10$

2. What percent of 72 is 60?

n% of 72 is 60.

$n \cdot 72 = 60$

3. 8 is what percent of 200?

8 is n% of 200.

$8 = n \cdot 200$

4. 125 is what percent of 200?

125 is n% of 200.

$125 = n \cdot 200$

Find each percent.

5. What percent of 80 is 28?

n% of 80 is 28.

$n = 35\%$

6. What percent of 250 is 100?

n% of 250 is 100.

$n = 40\%$

7. 12 is what percent of 24?

12 is n% of 24.

$n = 50\%$

8. 3 is what percent of 30?

3 is n% of 30.

$n = 10\%$

48% of what number is 60?

$$\begin{array}{ccccccc} 48\% & \text{of} & ? & \text{is} & 60 & & \\ \downarrow & \downarrow & & \downarrow & & & \\ 0.48 & \times & n & = & 60 & & \end{array}$$

Write an equation.

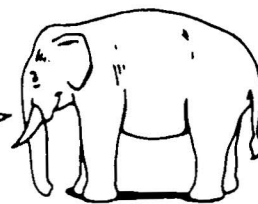
$$\frac{0.48 \times n}{0.48} = \frac{60}{0.48}$$

Divide both sides by 0.48.

$$n = \frac{60}{0.48}$$

$$n = 125$$

Remember:
48% = 0.48



48% of 125 is 60.

Write an equation for each sentence.

1. 10% of what number is 40?

$$10\% \text{ of } n \text{ is } 40.$$

$$0.10 \cdot n = 40$$

2. 5% of what number is 35?

$$5\% \text{ of } n \text{ is } 35.$$

$$0.05 \cdot n = 35$$

3. 20% of what number is 1.6?

$$20\% \text{ of } n \text{ is } 1.6.$$

$$0.20 \cdot n = 1.6$$

4. 45% of what number is 4.14?

$$45\% \text{ of } n \text{ is } 4.14.$$

$$0.45 \cdot n = 4.14$$

Find each number.

5. 50% of what number is 18?

$$50\% \text{ of } n \text{ is } 18.$$

$$n = 36$$

6. 4% of what number is 6?

$$4\% \text{ of } n \text{ is } 6.$$

$$n = 150$$

7. 27 is 30% of what number?

$$27 \text{ is } 30\% \text{ of } n.$$

$$n = 90$$

8. 10 is 20% of what number?

$$10 \text{ is } 20\% \text{ of } n.$$

$$n = 50$$

Compare these integers. Use $>$ or $<$.

1. $7 < 9$

2. $4 > 2$

3. $1 > -3$

4. $-32 < 2$

5. $0 > -2$

6. $4 > -13$

7. $-3 > -5$

8. $0 < 1$

9. $0 > -1$

10. $-3 < 0$

11. $14 > -14$

12. $-36 > -48$

13. $-4 < -1$

14. $12 > -14$

15. $-9 < 6$

16. $22 < 23$

List these integers in order from least to greatest.

17. $4 \quad -4 \quad 2$

-4 2 4

18. $0 \quad -3 \quad 6$

-3 0 6

19. $-3 \quad -6 \quad 0$

-6 -3 0

20. $0 \quad -6 \quad 2$

-6 0 2

21. $17 \quad -17 \quad 8 \quad -3$

-17 -3 8 17

22. $-23 \quad 0 \quad 18 \quad -14$

-23 -14 0 18

23. $-40 \quad 20 \quad -9 \quad 5$

-40 -9 5 20

The table shows temperatures taken at different times on a winter day in a northern city.

24. When did the highest temperatures occur, *morning* or *afternoon*?

Afternoon

Degrees Fahrenheit	
2:00 A.M.	-12
7:00 A.M.	-8
12:00 NOON	-3
5:00 P.M.	6

Maintenance

Compare these integers. Use $<$ or $>$.

1. $5 < 10$

2. $3 > -2$

3. $-5 < 0$

4. $-2 > -3$

5. $0 < 8$

6. $1 > -5$

7. $-15 > -21$

8. $-82 < -2$

List these integers in order from least to greatest.

9. 2 -2 7

-2 2 7

10. -5 -7 3

-7 -5 3

11. 0 -1 1

-1 0 1

12. 2 -8 -14

-14 -8 2

13. 5 7 2

2 5 7

14. -7 0 11

-7 0 11

15. -1 49 -371 -190 -5 0 126 -11

-371 -190 -11 -5 -1 0 49 126

16. -5 6 40 -7 -100 -30 0 270

-100 -30 -7 -5 0 6 40 270

17. Which is less, -38 or -42? -42

18. Which is more, 16 or 15? 16

19. Which is less, -24 or -14? -24

20. Which is more, -32 or -33? -32

Pg. #63

Add. Circle your answer in the chart below. Keep working exercises until you have circled six in a row, horizontally, vertically, or diagonally.

1. $14 + (-20) = -6$

2. $-7 + 9 = 2$

3. $8 + (-3) = 5$

4. $-9 + 9 = 0$

5. $0 + (-8) = -8$

6. $-15 + 8 = -7$

7. $17 + (-7) = 10$

8. $-12 + 8 = -4$

9. $13 + (-7) = 6$

10. $-9 + 22 = 13$

11. $-9 + (-9) = -18$

12. $16 + (-2) = 14$

13. $-12 + (-2) = -14$

14. $-32 + 27 = -5$

15. $16 + (-32) = -16$

16. $-10 + 28 + (-7) = 11$

17. $-19 + 21 + 15 + (-5) = 12$

5	15	-21	-18	-2	13
23	0	-17	7	-5	-20
8	-10	-8	-49	-11	2
-13	11	-9	-7	98	52
-16	14	-40	9	-6	-52
-4	-14	10	-62	6	12

Pg#64

Subtract.

1. $-4 - (4) = -8$

2. $8 - (-7) = 15$

3. $-9 - (-9) = 0$

4. $-25 - (-5) = -20$

5. $37 - 22 = 15$

6. $-8 - (-12) = 4$

7. $9 - (-4) = 13$

8. $-17 - 20 = -37$

9. $15 - 42 = -27$

10. $24 - (-10) = 34$

11. $67 - (-66) = 133$

12. $-36 - (-9) = -27$

13. $6 - 26 = -20$

14. $-22 - 15 = -37$

15. $-32 - (-36) = 4$

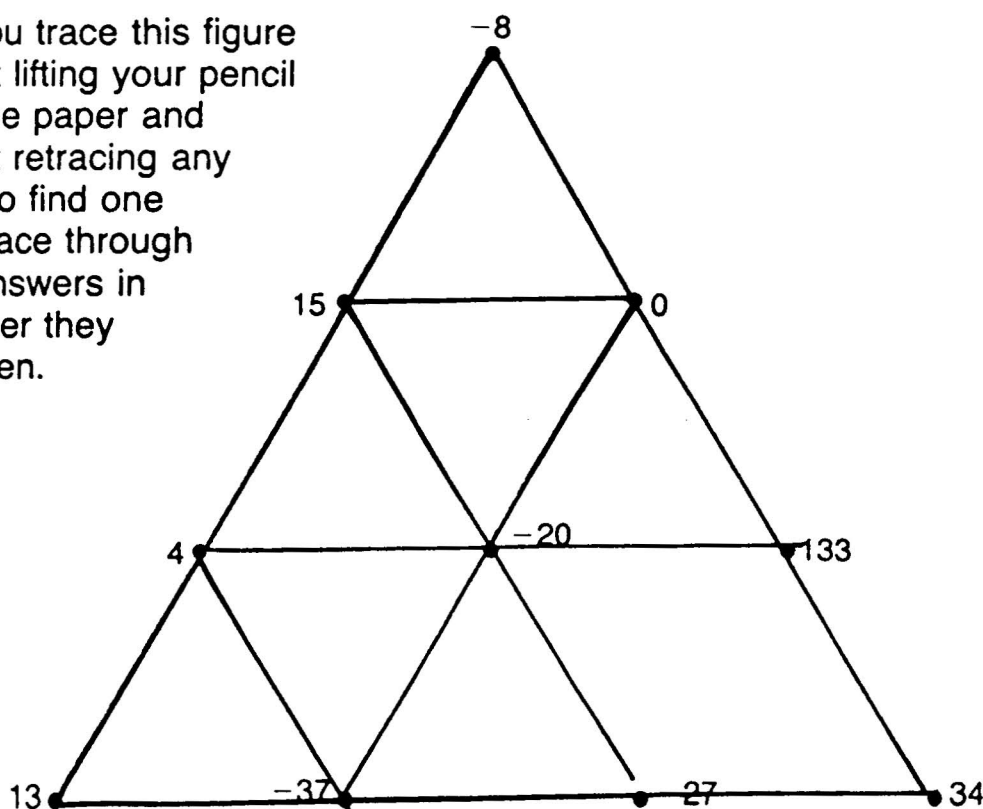
16. $32 - 54 - (-2) = -20$

17. $61 - (-50) + 22 = 133$

18. $-4 - 8 - (-12) = 0$

19. $-38 - 21 - (-51) = -8$

Can you trace this figure without lifting your pencil from the paper and without retracing any line? To find one way, trace through your answers in the order they are given.



Adding & Subtracting Integers

Simplify each subtraction expression by "adding the Opposite" of the second number.

1. $-8 + -9 = -17$

13. $-24 - (-38) = 14$

2. $-10 - 4 = -14$

14. $0 - 17 = -17$

3. $-15 + 20 = 5$

15. $-56 - 45 = -101$

4. $31 - (-8) = 39$

16. $73 + -18 = 55$

5. $-17 + 9 = -8$

17. $-232 - (-232) = 0$

6. $-9 - (-26) = 17$

18. $-108 + -676 = -784$

7. $-78 - 65 = -143$

19. $43 + -56 - 78 = -91$

8. $13 + -7 = 6$

20. $-98 - (-126) + 19 = 47$

9. $113 - (-62) = 175$

21. $91 - 176 - (-11) = -74$

10. $0 - (-9) = 9$

22. $-17 + 436 + -642 = -223$

11. $34 + -68 = -34$

23. $-121 + -732 - (-13) = -840$

12. $608 - 343 = 265$

24. $-534 - (-454) + -78 = -158$

Mixed Practice with Integers

Perform the indicated operations.

1. $-34 + -122$

-156

2. $80 - (-22)$

102

3. $-3 \cdot 5$

-15

4. $19 \cdot -23$

-437

5. $83 + -85$

-2

6. $28 - (-65)$

93

7. $28 - (-26)$

54

8. $-31 - (-21)$

-10

9. $-35 + 62 + -90$

-63

10. $12 \cdot -13 \cdot 6$

-936

11. $(212 + -234 - 222) \div -6$

$40 \frac{2}{3}$

12. $100 \cdot 3 \cdot 21$ $6,300$

13. $\frac{175}{-5} \cdot -4$
 140

14. $\frac{-555}{-5} \cdot -6$
 -666

15. $\frac{-424}{4}$
 -106

16. $\frac{-72}{8} + \frac{-64}{8} + \frac{33}{-11}$
 $-22 \frac{2}{3}$

17. $(225 \div 5) \cdot .2$
 90

18. $(-19 - (-21) - (-34)) \div -6$
 -6

19. $(-18 - -77 - 22) \cdot 2$
 74

20. $(10 + -31 + -80) \div 3$
 $-33 \frac{2}{3}$

21. $(16 - 21 + 34) \div -8$
 $-3 \frac{5}{8}$

22. $(-320 + -75 + 24) \cdot 4$
 $-1,484$

23. $(-12 + 13 + 55) \cdot 3$
 168

24. $(-12 - 54 - 10) \cdot 2$ -152

Maintenance

Give each answer.

1. $-2(15) = -30$

2. $-15 \div (-3) = 5$

3. $15 - 35 = -20$

4. $12(2) = 24$

5. $0(-88) = 0$

6. $9 \div (-3) = -3$

7. $\frac{44}{4} = 11$

8. $\frac{56}{-7} = -8$

9. $0 - 89 = -89$

10. $-72 \div 9 = -8$

11. $5 - (-2) = 7$

12. $\frac{125}{-5} = -25$

13. $\frac{-48}{6} = -8$

14. $0 - (-3) = 3$

15. $5 - (-2) = 7$

16. $38 - (5 + 2) = 31$

17. $(2)(-5)(0)(56) = 0$

18. $15 + (-7) - (-18) - 17 = 9$

19. $14 - (-10) - 18 - (-2) = 8$

20. $-3(4)(-2)(-1) = -24$

21. $6 - (-7 + 6) = 7$

22. $32 + (-32) - 32 = -32$

23. $32 \div (-32) = -1$

24. $27 - (-5) - 11 = 21$

25. $(-3)(-12)(2) = 72$

Pg. #68

Combine Like Terms

$$9x + 7y + -21x = -12x + 7y$$

Combine like terms.

1. $5x + 7x = 12x$

11. $4.7x - 5.9x = -1.2x$

2. $19x + x = 20x$

12. $7s + 5x - 8s = s + 5x$

3. $k - (-8k) = 9k$

13. $4a + 9 + a = 5a + 9$

4. $-12x + -4x = -16x$

14. $5x - 6y - 8y + 7x = 12x - 14y$

5. $13c - 12c = c$

15. $23x + 8 + 6x + 3y = 29x + 3y + 8$

6. $-e + 8e = 7e$

16. $4xy + 7xy + 6x^2y + 7xy^2 =$
 $11xy + 6x^2y + 7xy^2$

7. $3yz + 5yz = 8yz$

17. $-21x + 7y + 6xy + -3y^2 =$
 $4x - y + 3xy$

8. $-12n - -13n = n$

18. $4x + 3y + -5y + 3xy + y$
 $4x - y + 3xy$

9. $12b + -34b = -22b$

19. $2xy + 7x + 6xy + 3xy + -3x$
 $11xy + 4x$

10. $13ab + (-12ab) = ab$

20. $4x^2 + -7y + -4xy + 9x^2 + 2xy$
 $13x^2 - 7y - 2xy$

Combine Like Terms

$$5(x + 3) + (4x - 7y) + (3x + 2y) = 5x + 15 + 4x - 7y + 3x + 2y = 12x + 15 - 5y$$

Combine like terms.

1. $-2x + 3y - 5x - 8y + 9y =$

$$-7x + 20y$$

2. $3x + (-3y) - (5x) + y =$

$$-2x - 2y$$

3. $7 - 4y + x + 9y =$

$$7 + x + 5y$$

4. $-21x + (-2x) =$

$$-23x$$

5. $7(x - y) - 5(2x + 4y) =$

$$-3x - 27y$$

6. $-n + 9n + 3 - 8 - 8n =$

$$-5$$

7. $4(x + 5y) + 3(x + 6y) + 6(3x + 8y) =$

$$25x + 86y$$

8. $12x + 6x + 9x - 3y + -7y + y =$

$$27x + 86y$$

9. $-2(c - d) + (c - d) - 6(c - d) =$

$$-7c + 7d$$

10. $-3(4x + -2y) - 2(x + 3y) - 2(2x + 6y) =$

$$-18x - 12y$$

11. $3(-4x + 7y) - 3x(2 + 3y) =$

$$-18x - 9xy + 21y$$

12. $2y + 3(2y + 8x) - 3(8y + 2x) =$

$$-16y + 18x$$

13. $5(3x^2 - 2y^2) + 3x(x + 3y^2) =$

$$18x^2 + 9xy^2 - 10y^2$$

14. $2 \cdot 4x \cdot 3y - 4x \cdot 7y =$

$$-4xy$$

15. $3x + 4y + 2x + 5y - 4x =$

$$x + 9y$$

16. $4(x + 5y) + (5x + y) =$

$$9x + 21y$$

17. $5(x^2 + 3y^2) - y(x^2 + 5y) =$

$$5x^2 - x^2y + 10y^2$$

18. $3(2(-y^2 + y) - 3) - 3(2x + y) =$

$$8y + 38y$$

19. $4(x + 9y) - 2(2x + y) =$

$$8x + 38y$$

20. $7x + -2y^2 + 3xy^2 + 2x^2 + 5xy^2 =$

$$2x^2 + 7x + 8xy^2 - 2y^2$$

Skill #13



Variables and Equations



Keep in mind...
Triumph = Umph! added to Try

Combining Like Terms

$$8x + 5y + -17x = -9x + 5y$$

1. $9x + 4x$ $13x$

2. $17x + x$ $18x$

3. $m + (-4m)$ $-3m$

4. $-7x - 8x$ $-15x$

5. $14a - 19a$ $-5a$

6. $-a + 9a$ $8a$

7. $6xy + 5xy$ $11xy$

8. $-9m - m$ $-10m$

9. $15a + (-11a)$ $4a$

10. $-14x + 13x$ $-x$

11. $5x^2y + 13x^2y$ $18x^2y$

12. $21xy + (-9xy)$ $12xy$

13. $17x + 1$ $17x + 1$

14. $3.5y - 7.2y$ $-3.7y$

15. $-4.7y - 2.3y$ $-7y$

16. $3a + 5c - 9a$ $-6a + 5c$

17. $2x - 9x + 7$ $-7x + 7$

18. $7x - 8 - 11x$ $-4x - 8$

19. $3x - 3y - 9x + 7y$ $-6x + 4y$

20. $17x + 4 - 3x$ $14x + 4$

21. $3x - 7y - 12y$ $3x - 19y$

22. $11a - 13a + 15a$ $13a$

23. $17x + 5a - 3x - 4a$ $14x + a$

24. $6x + 9y + 2x - 8y + 5$ $8x + y + 5$

25. $3xy + 4xy + 5x^2y + 6xy^2$ $7xy + 5x^2y + 6xy^2$

26. $-25y - 17y + 6xy - 3xy$ $-42y + 3xy$

Variables and Equations



...More Combining Like Terms

$$3(a + 2) + (2a - 6b) = 3a + 6 + 2a - 6b = 5a - 6b + 6$$

1. $5t + 3r + 9t - 10r - 8$

$14t - 7r - 8$

2. $4a + (-2b) + (-2a) + b$

$2a - b$

3. $12x - 3y + x + 2y$

$13x - y$

4. $-30x - (-1x)$

$-29x$

5. $6(x - y) - 3(3x + y)$

$-3x - 9y$

6. $17x + 3y + 30x - 5y$

$47x - 2y$

7. $4p - 6q + 6q - 10p + q$

$-6p + q$

8. $-r + 7 + 3r - 9 - 2r$

-2

9. $8(x + y) + 3(x - y)$

$11x + 5y$

10. $3(x + 7y) - 5(x + 7y) + 9(x + 7y)$

$7(x + 7y) \text{ or } 7x + 49y$

11. $2(-2a^2 - 4d) - (-3a^2 + 17d)$

$-a^2 - 25d$

12. $2(3(-x^2 + x) - 1) - 5x + 6x^2$

$x - 2$

13. $3(a + 2b) + -(b + 2a)$

$a + 5b$

14. $-5(a - b) - (a - b) + 8(a - b)$

$2a - 2b$

15. $-4(x + 5(-3xy + x)) - (10 + 15xy)$

$45xy - 24x - 10$

16. $\frac{5}{8}c^2 - \frac{1}{4}d - \frac{3}{7}c^2 + \frac{3}{5}d$

$\frac{11}{56}c^2 + \frac{7}{20}d$

17. $3 \cdot 5a - 7 \cdot 3b - 3 \cdot 2a + 2 \cdot 9b$

$9a - 3b$

18. $2\frac{1}{2}xy - xy + 3\frac{1}{3}xy$

$4\frac{5}{6}xy$

19. $6(x^2 + y^2) - 7(x^2 + y^2)$

$-x^2 - y^2$

20. $4x - y + 2\frac{1}{2}x + 3\frac{1}{4}y$

$6\frac{1}{2}x + 2\frac{1}{4}y$

Simplifying Expressions

$$3n - 2n + 4r = (3 - 2)n + 4r \\ = n + 4r$$

Combine like terms.

1. $7r + 2r - 4 = 9r - 4$

8. $12p + 5pd - 3p + 6pd = 9p + 11pd$

2. $23x - 7x + 4x = 20x$

9. $4x - 2x + 6xy + 21x + -9xy - 9 = 23x + -3xy - 9$

3. $3xy + 13xy - 12xy = 4xy$

10. $4e + 5ed + 4d - 7ed + 7 = 4e + 4d - 2ed + 7$

4. $-3n + 12 - 4n = -7n + 12$

11. $3x + 2y - 2xy + 5x - 2xy = 8x - 4xy + 2y$

5. $12ax - 2ax + 14x - 2a + -3x = 10ax + 11x - 2a$

12. $7a + a - a + 3ab - ab + 2ab = 7a + 4ab$

6. $3x + 2y + xy - 6xy + 4x + -4y = 7x - 2y - 5xy$

13. $5m + 2m + 40m + m + 17 = 48m + 17$

7. $2r + 4ry - 5r + 3x - 4ry = -3r + 3x$

14. $2x + 3xy + 4x + 5xy + 6x = 12x + 8xy$

Simplifying Expressions

$$5r - 3r + 4k = (5 - 3)r + 4k \\ = 2r + 4k$$

Combine like terms.

$$1. \quad 6r + 5r - 8p + 6p + 7(2r - 4r) = \\ -3r - 2p$$

$$8. \quad 12p + 5pd - 3p + 6pd = \\ 9p + 11pd$$

$$2. \quad 9x - 7x + 2x + 8(6x + 2x) = \\ 68x$$

$$9. \quad 3(x - 5x) + 2(xy + 8x) + (-8xy) = \\ 4x - 6xy$$

$$3. \quad 5xy - 12xy + 12xy - 9(x + y) = \\ 5xy - 9x - 9y$$

$$10. \quad -2a - 3(a + 7) - 4(-a + b) = \\ 5a - 4b + 21$$

$$4. \quad 2t + 12t - 4(n + 4n) = 14t - 20n$$

$$11. \quad 4n(x - y) + 3n(x + y) - 2 = \\ 7nx - ny - 2$$

$$5. \quad -2(g + 5g) + -4(8f - (-12g)) = \\ -60g - 32f$$

$$12. \quad 3(h - (-k)) + 2(-3h + -4k) = \\ -3h - 5k$$

$$6. \quad 7(2x + 5y) + xy - 6(3xy + 5x) = \\ -16x + 35y - 17xy$$

$$13. \quad 8(2x + 2y) - 4(3xy - (-5x)) = \\ -4x + 16y - 12xy$$

$$7. \quad 5m + 6mn - (-9n) + 2(m - n) = \\ 7m + 6mn + 7n$$

$$14. \quad 3c - 4bc + (-7b) + 3(2bc - b) = \\ 3c + 2bc - 10b$$

Solving One-Step Equations (Addition and Subtraction)

$$\begin{aligned}12 + x &= -13 \\12 + -12 + x &= -13 + -12 \\x &= -25\end{aligned}$$

Solve each equation for the given variable.

1. $y - 12 = 15$

$y = 27$

2. $x - 13 = -23$

$x = -10$

3. $12 + -g = 14$

$g = -2$

4. $3 + x = 9$

$x = 6$

5. $-13 + x = 18$

$x = 31$

6. $-t + -7 = -56$

$t = 49$

7. $27 = v + -5$

$v = 32$

8. $-19 + b = 31$

$b = 50$

9. $a + 5.7 = 18.9$

$a = 13.2$

10. $-100 = b + -73$

$b = -27$

11. $-4 = x - 3$

$x = -1$

12. $2\frac{1}{3} + r = 4\frac{2}{9}$

$r = 1\frac{8}{9}$

13. $x + 2 = 2(3 - 4)$

$x = -4$

14. $-13 = n + (-36)$

$n = 23$

15. $c - 3 = 4.7$

$c = 7.7$

16. $r = 4.4 + 3.9$

$r = 8.3$

17. $z + 3.5 = 3.7$

$z = 0.2$

18. $s - 9 = (6 + -8)$

$s = 7$

19. $n + \frac{1}{2} = \frac{3}{4}$

$n = \frac{1}{4}$

20. $12 - -u = 19$

$u = 7$

Solving Basic Equations

$$\begin{aligned}9x + 3 &= 21 \\9x + 3 - 3 &= 21 - 3 \\9x &= 18 \\x &= 2\end{aligned}$$

Solve each equation for the given variable.

1. $5n - 8 = -23$

$n = -3$

2. $6x - 2 = 22$

$x = 4$

3. $5t - 8 = -18$

$t = -2$

4. $6x - 5 = -41$

$x = -6$

5. $13x + 7 = -32$

$x = -3$

6. $2x + 8 = 6$

$x = -1$

7. $-8(r - 2) = 40$

$r = -3$

8. $2(w - 6) = 8$

$w = 10$

9. $2(f + 7) - 8 = 22$

$f = 8$

10. $3x - 4 = -16$

$x = -4$

11. $2 + \frac{1}{5}x = -7$

$x = -45$

12. $-6 = \frac{3u}{4} + 12$

$u = -24$

13. $7.2 + 4x = 19.2$

$x = 3$

14. $-3 + 2n = -15$

$n = -6$

15. $5 - \frac{1}{2}g = 12$

$g = -14$

16. $4k + 7 = -1$

$k = -2$

17. $3(c - 2) = 15$

$c = 7$

18. $7h + 1 = -13$

$h = -2$

19. $5e + -4 = 26$

$e = 6$

20. $\frac{m}{3} - 7 = -10$

$m = -9$

Solving Equations with 2 Operations

$$\begin{aligned}
 3y - 6 &= 30 \\
 3y - 6 + 6 &= 30 + 6 \\
 3y &= 36 \\
 \frac{3y}{3} &= \frac{36}{3} \\
 y &= 12
 \end{aligned}$$

Solve each equation for the given variable.

1. $-8r - 7 = -24$
 $r = \frac{17}{8}$

8. $13n - 13 = -12$
 $n = \frac{1}{13}$

2. $5x - 5 = -10$
 $x = -1$

9. $23x - 12 = -33$
 $x = \frac{-21}{23}$

3. $9 = 3y + 5$
 $y = \frac{4}{3}$

10. $-42 = 6b + 8$
 $b = \frac{25}{3}$

4. $12 = 6c - 4$
 $c = \frac{16}{6}$

11. $16 + 4y = -32$
 $y = -12$

5. $-23 = 3e - (-9)$
 $e = \frac{-32}{3}$

12. $16 + \frac{r}{2} = -11$
 $r = -54$

6. $16 = -2v + 9$
 $v = \frac{-7}{2}$

13. $2x - 5 = 16$
 $x = \frac{21}{2}$

7. $\frac{3y}{4} = 12$
 $y = 16$

14. $11 = 3y - 10$
 $y = 7$

Solving Basic Equations

$$\begin{aligned}12x + 3 &= 147 \\12x + 3 - 3 &= 147 - 3 \\12x &= 144 \\x &= 12\end{aligned}$$

Solve each equation for the given variable.

1. $3(x - 7) = 9$

$x = 10$

2. $\frac{m}{4} + 6 = 2$

$m = -16$

3. $4(c + 2) = -28$

$c = -9$

4. $-9r + 5 = -22$

$r = 3$

5. $4 + 3g = -14$

$g = -6$

6. $7t - 3 + 4t = -25$

$t = -2$

7. $14a + 5 - 8a = -1$

$a = -1$

8. $2m - 3 - 8m = -27$

$m = 4$

9. $-5 + 7d + 3 = 33$

$d = 5$

10. $b + 9 - 2b = 6$

$b = 3$

11. $4j - 9j + 3 = -32$

$j = 7$

12. $3d - 5 - 2d = -9$

$d = -4$

13. $2k + 3(k + 4) = -3$

$k = -3$

14. $3e + 4e + 1 = 36$

$e = 5$

15. $5(j - 4) + j = -8$

$j = 2$

16. $12k - 3(k + 5) = 48$

$k = 7$

17. $-6r + 12 - 8r = -2$

$r = 1$

18. $-j + 3j + 2 = -14$

$j = -8$

19. $5(m - 3) + 2m = 27$

$m = 6$

20. $4e + 6 - 11e = -8$

$e = 2$

Solving Equations

$$\begin{aligned}3x + 5 &= 4x + 6 \\3x - 4x + 5 &= 4x - 4x + 6 \\-x + 5 &= 6 \\-x + 5 - 5 &= 6 - 5 \\-x &= 1 \\\frac{-x}{-1} &= \frac{1}{-1} \\x &= -1\end{aligned}$$

Solve each equation for the given variable.

1. $3m - 8 = 5m + 8$

$$m = -\frac{16}{2}$$

8. $23b + 9 = 4b + 66$

$$b = 3$$

2. $-t + 9 = t + 5$

$$t = 2$$

9. $-4g + 12 = g + 2$

$$g = 2$$

3. $7y - 7 = 5y + 13$

$$y = 10$$

10. $-8t = 27 + t$

$$t = -3$$

4. $4h + 10 = 2h - 22$

$$h = -16$$

11. $13y - 26 = 7y + 22$

$$y = 8$$

5. $-r - 3 = 1 - 3r$

$$r = 2$$

12. $4n - 6 = 6n + 14$

$$n = -10$$

6. $17 + p = 7p - 13$

$$p = 5$$

13. $e + 8 = 2e - 12$

$$e = 20$$

7. $4x - 7 = 2x + 7$

$$x = 7$$

14. $9w + 6 = 6w - 15$

$$w = -7$$

Solving Equations with Variables on Both Sides

$$\begin{aligned}
 6x - 7 &= x + 23 \\
 6x - x - 7 &= x - x + 23 \\
 5x - 7 &= 23 \\
 5x &= 30 \\
 x &= 6
 \end{aligned}$$

Solve each equation for the given variable.

1. $2x - 7 = 3x + 4$

$x = -11$

2. $-7c + 9 = c + 1$

$c = 1$

3. $4(2y - 4) = 5y + 2$

$y = 6$

4. $-6 - 2n = 3n - (6 + 5)$

$n = 5$

5. $4(t + 5) - 3 = 6t - 13$

$t = 15$

6. $2(r - 4) = 5(r + -7)$

$r = 9$

7. $7 - 6a = 6 - 7a$

$a = -1$

8. $12m - 9 = 4m + 15$

$m = 3$

9. $8(x - 3) + 8 = 5x - 22$

$x = -2$

10. $3c - 12 = 14 + 5c$

$c = -13$

11. $9a + 5 = 3a - 1$

$a = -1$

12. $6(x - 9) = 4(x - 5)$

$x = 17$

13. $2(x - 4) + 8 = 3x - 8$

$x = 8$

14. $3x - 3 = -3x + -3$

$x = 8$

15. $-10x + 6 = -7x + -9$

$x = 5$

16. $5 + 3x = 7(x + 3)$

$x = -4$

17. $\frac{5}{2}x + 3 = \frac{1}{2}x + 15$

$x = 6$

18. $2x + 6 = 5x - 9$

$x = 5$

19. $4e - 19 = -3(e + 4)$

$e = 1$

20. $5t + 7 = 4t - 9$

$t = -16$

Skill #14



Variables and Equations

Solving Equations with Variables on Both Sides

$$\begin{aligned} 4x - 6 &= x + 9 \\ 4x - x - 6 &= x - x + 9 \\ 3x - 6 &= 9 \\ 3x - 6 + 6 &= 9 + 6 \\ \frac{3x}{3} &= \frac{15}{3} \\ x &= 5 \end{aligned}$$

1. $4x - 6 = x + 9$ $x = 15$

11. $5x - 7 = -10x + 8$ $x = 1$

2. $4 - 7x = 1 - 6x$ $x = 3$

12. $7y + 3 = 4y - 18$ $y = -7$

3. $-4x - 3 = -6x + 9$ $x = 6$

13. $-3(y + 3) = 2y + 3$ $y = -2\frac{2}{5}$

4. $41 - 2n = 2 + n$ $n = 13$

14. $2(-3a + 5) = -4(a + 4)$ $a = 13$

5. $6(2 + y) = 3(3 - y)$ $y = -\frac{1}{3}$

15. $7x - 3 = 2(x + 6)$ $x = 3$

6. $4y = 2(y - 5) - 2$ $y = -6$

16. $-6x + 9 = 4(5 - x)$ $x = -5\frac{1}{2}$

7. $6x - 9x - 4 = -2x - 2$ $x = -2$

17. $3(x + 2) = -5 - 2(x - 3)$ $x = -1$

8. $-(x + 7) = -6x + 8$ $x = 3$

18. $2(x - 3) = (x - 1) + 7$ $x = 12$

9. $3 - 6a = 9 - 5a$ $a = -6$

19. $\frac{1}{3}(6y - 9) = -2y + 13$ $y = 4$

10. $-9x + 6 = -x + 4$ $x = \frac{1}{4}$

20. $\frac{1}{6}(12 - 6x) = 5(x + 4)$ $x = -3$



Variables and Equations

Equations, the Big Picture...Putting It All Together

1. $\frac{3}{2}x - 9 = 0$ $x = 6$

2. $6x + 3 = -5x + 14$ $x = 1$

3. $\frac{1}{8}x + 3 = 2$ $x = -8$

4. $5y = 2y - 42 - 3y$ $y = -7$

5. $37 + 8x = 4(7 - x)$ $x = -\frac{3}{4}$

6. $5(2 - x) = 7x - 26$ $x = 3$

7. $6 + 4x = \frac{1}{3}(6x + 9)$ $x = -\frac{3}{2}$

8. $1.6(3y - 1) + 2 = 5y$ $y = 2$

9. $7x - 10 = 6(11 - 2x)$ $x = 4$

10. $3(4x - 9) = 5(2x - 5)$ $x = 1$

11. $\frac{3}{4}(x + 7) = x + 50$ $x = -179$

12. $\frac{5}{7}y - 15 = 5y + 30$ $y = -10\frac{1}{2}$



Proportions

$$\frac{x}{12} = \frac{5}{3}$$

A pipe delivers 5 gallons of water in 45 seconds.
How much will it deliver in 15 minutes?

$$3x = 12 \cdot 5$$

$$3x = 60$$

$$x = 20$$

$$\frac{5 \text{ gal}}{45 \text{ sec}} = \frac{x \text{ gal}}{15 \cdot 60 \text{ sec}}$$

$$45x = 5 \cdot 900$$

$$45x = 4500$$

$$x = 100$$

100 gallons

1. $\frac{9}{11} = \frac{16}{x}$ $x = 19\frac{5}{9}$ 2. $\frac{5}{13} = \frac{a}{65}$ $a = 25$ 3. $\frac{y}{2.5} = \frac{21}{5}$ $y = 10.5$

4. $\frac{z-8}{21} = \frac{1}{3}$ $z = 15$ 5. $\frac{2x+1}{3} = \frac{4}{5}$ $x = \frac{7}{10}$ 6. $\frac{n}{16-n} = \frac{5}{3}$ $n = 10$

7. $\frac{2x+1}{9} = \frac{x}{4}$ $x = 4$ 8. $\frac{3m}{m+4} = \frac{5}{3}$ $m = 5$ 9. $\frac{x-2}{x} = \frac{x-1}{x+2}$ $x = 4$

10. If 30m of wire weigh 8 kilograms, what will 40m of the same kind of wire weigh?

$$10\frac{2}{3} \text{ kg}$$

11. On a map, $1\frac{1}{2}$ cm represents 60 km. What distance does 6 cm represent?

$$240 \text{ km}$$

12. A post casts a shadow 9 feet long. A girl 5 feet tall casts a shadow 15 feet long at the same time and place. How tall is the pole?

$$3 \text{ ft}$$

13. If Marilyn drove 270 miles in $4\frac{1}{2}$ hours, how far would she travel in 7 hours?

$$420 \text{ miles}$$

14. The sales tax on an \$800 purchase is \$24. At this rate, what is the tax on a \$600 purchase?

$$\$18$$

Exponents - Skill #15

Write in expanded form.

$$\textcircled{1} 5^3 = \underline{5 \cdot 5 \cdot 5}$$

$$\textcircled{3} 2^5 = \underline{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}$$

$$\textcircled{2} 4^5 = \underline{4 \cdot 4 \cdot 4 \cdot 4 \cdot 4}$$

$$\textcircled{4} 3^4 = \underline{3 \cdot 3 \cdot 3 \cdot 3}$$

Solve:

$$\textcircled{5} 2^5 = 32$$

$$\textcircled{6} 5^3 = 125$$

$$\textcircled{7} 10^5 = 100,000$$

$$\textcircled{8} (-1)^5 = -1$$

$$\textcircled{9} 4^2 = 16$$

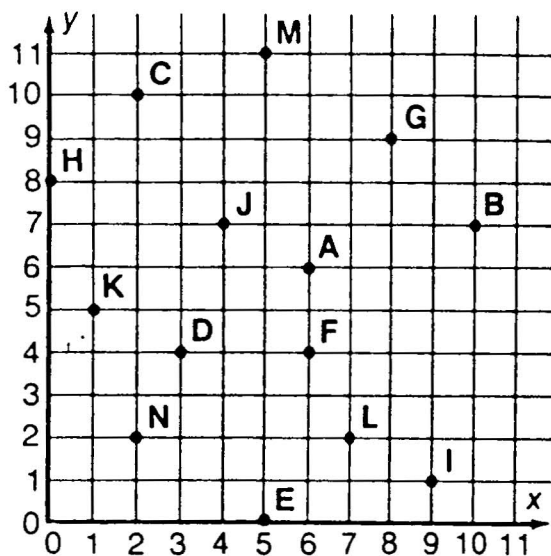
$$\textcircled{10} 3^3 = 27$$

Give the coordinates of:

1. M (5, 11) 2. J (4, 7)
 3. E (5, 0) 4. L (7, 2)
 5. B (10, 7) 6. H (0, 8)

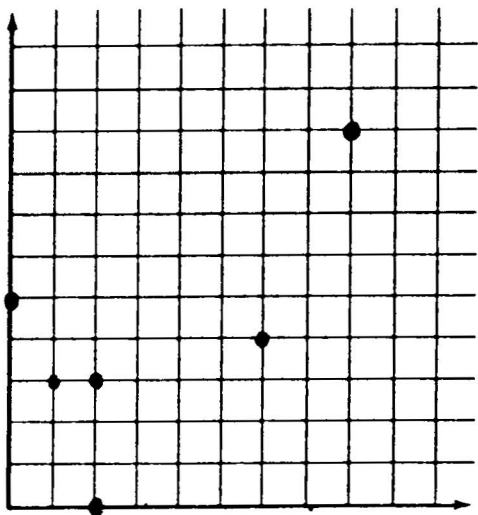
Name the point with the given coordinates.

7. (1, 5) K 8. (2, 10) C
 9. (6, 6) A 10. (3, 4) D
 11. (8, 9) G 12. (9, 1) I



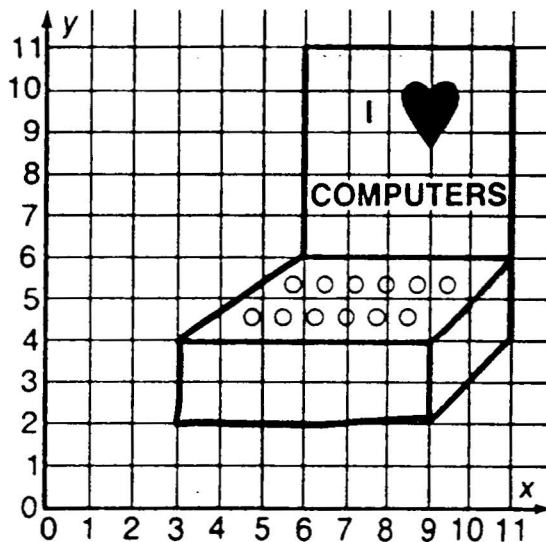
Label the x-axis and the y-axis on the grid below. Graph these points and label them with the ordered pairs.

13. (2, 3) 14. (0, 5)
 15. (6, 4) 16. (2, 0)
 17. (1, 3) 18. (8, 9)



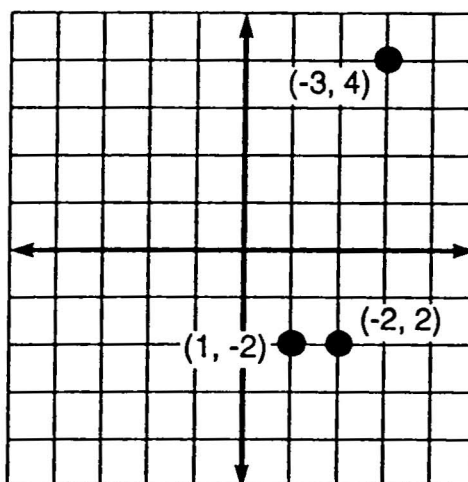
Complete the picture below by drawing the lines that begin and end with these points.

19. (9, 4) to (11, 6)
 20. (3, 2) to (3, 4)
 21. (3, 2) to (9, 2)



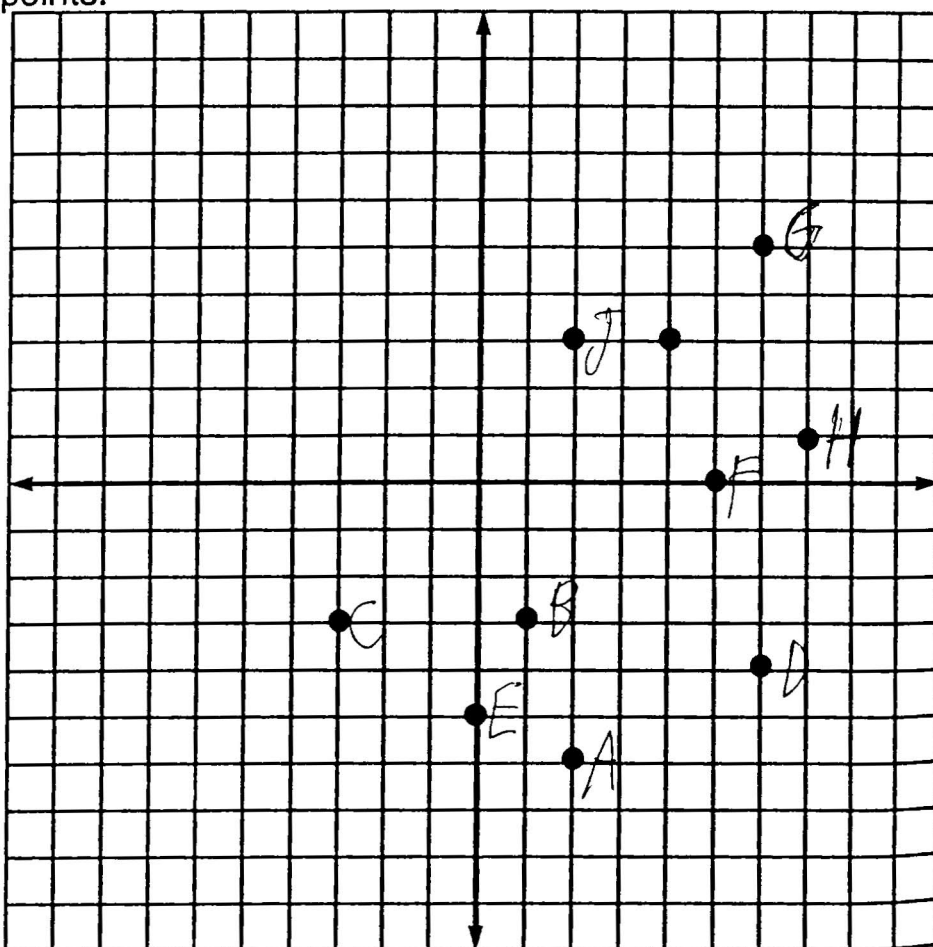
Plotting Points

$(x,y) = (1, -2)$ Over 1 and down 2
 $(x,y) = (-3, 4)$ Over 3 and up 4
 $(x,y) = (2, -2)$ Over 2 and down 2



Identify the following points.

- A (2, -6)
- B (1, -3)
- C (-3, -3)
- D (6, -4)
- E (0, -5)
- F (5, 0)
- G (6, 5)
- H (7, 1)
- I (4, 3)
- J (2, 3)



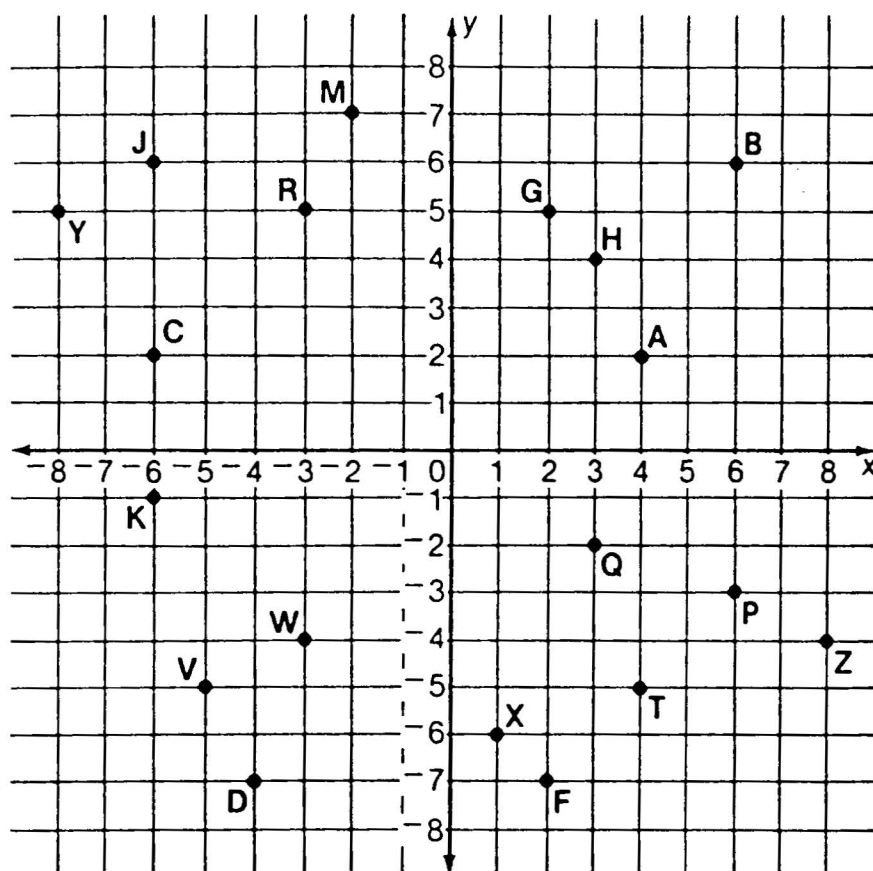
Captain Roman's video screen shows ships of his Star Fleet at these locations.

A. Which Star Ship is located at $(-3, -4)$?

Start at the origin.
Move left 3 units. Move down 4 units.

← ↓
 $(-3, -4)$

Star Ship W is located at $(-3, -4)$.



B. Report the location of Star Ship Q.

Star ship Q is located at $(3, -2)$.

Name the Star Ship located by each ordered pair.

- | | | | |
|------------------------|-----------------------|-----------------------|----------------------|
| 1. $(3, 4)$ <u>H</u> | 2. $(-6, 2)$ <u>C</u> | 3. $(8, -4)$ <u>Z</u> | 4. $(2, 5)$ <u>G</u> |
| 5. $(-6, -1)$ <u>K</u> | 6. $(-6, 6)$ <u>J</u> | 7. $(2, -7)$ <u>F</u> | 8. $(4, 2)$ <u>A</u> |

Report the location of each Star Ship by using ordered pairs.

- | | | | |
|------------------------------------|------------------------------------|------------------------------------|-----------------------------------|
| 9. C <u>$(-6, 2)$</u> | 10. D <u>$(-4, -7)$</u> | 11. K <u>$(-6, -1)$</u> | 12. M <u>$(-2, 7)$</u> |
| 13. Y <u>$(-8, 5)$</u> | 14. R <u>$(-3, 5)$</u> | 15. X <u>$(1, -6)$</u> | 16. B <u>$(6, 6)$</u> |
| 17. V <u>$(-5, -5)$</u> | 18. P <u>$(6, -3)$</u> | 19. J <u>$(-6, 6)$</u> | 20. T <u>$(4, -5)$</u> |

Use the double bar graph to find the number of books checked out each day.

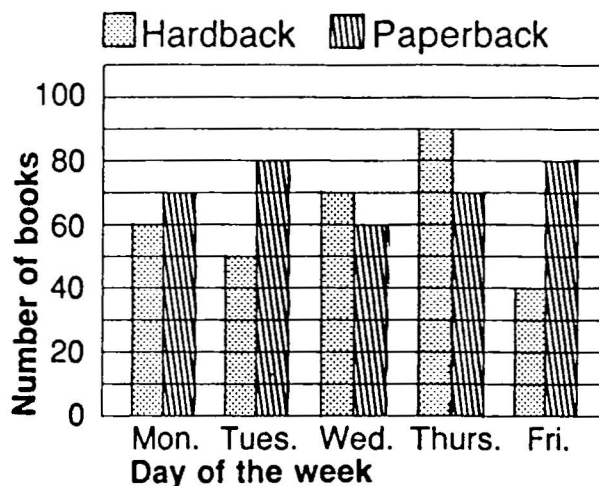
1. Paperbacks on Tuesday 80
2. Hardbacks on Monday 60
3. Hardbacks on Friday 40
4. Paperbacks on Friday 80
5. Paperbacks on Wednesday 60
6. Hardbacks on Tuesday 50
7. Total books on Tuesday 130
9. Total books on Thursday 160
11. On which days were more than 70 paperback books checked out?

Tuesday and Friday

13. What is the range of the data for hardback books?

50

Books Checked Out



8. Total books on Friday 120
10. Total books on Monday 130
12. On which days were more hardback books than paperback books checked out?

Wednesday and Thursday

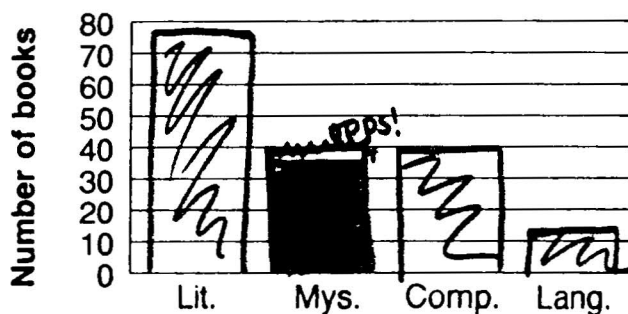
14. What is the range of the data for paperback books?

20

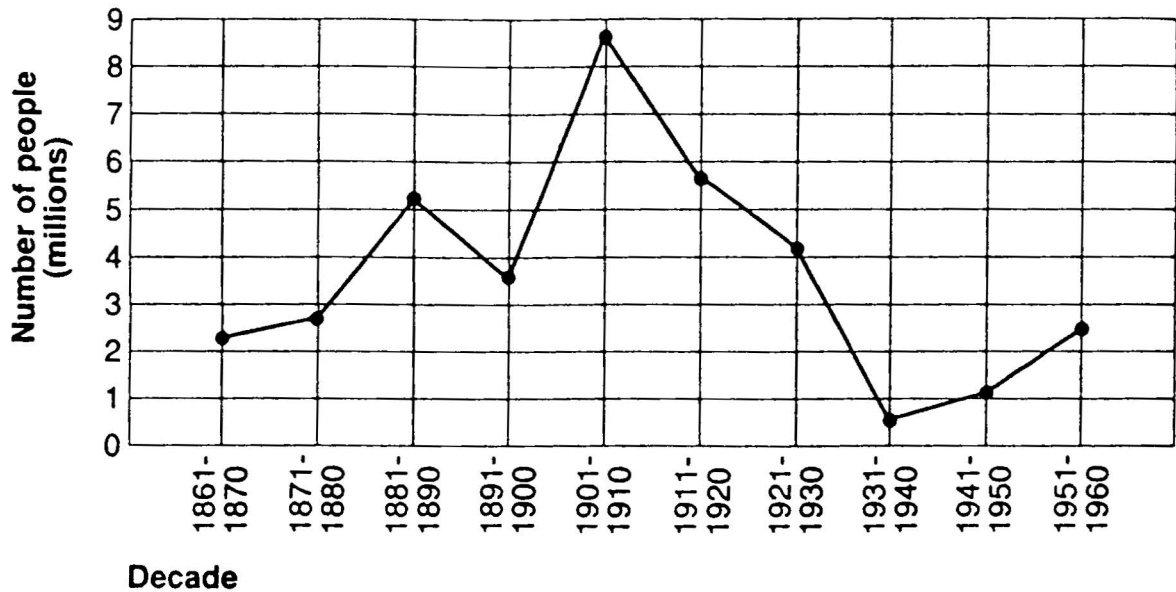
15. A clerk was asked to keep a record of the number of certain kinds of books sold during one week. Make a bar graph for his data.

Literature 78
Mystery 35
Computers 40
Languages 12

Types of Books Sold



U.S. Immigration (1861–1960)



Use the graph to answer each question.

In which decade was immigration about

1. 4 million? 1921-1930 2. 6 million? 1911-1920

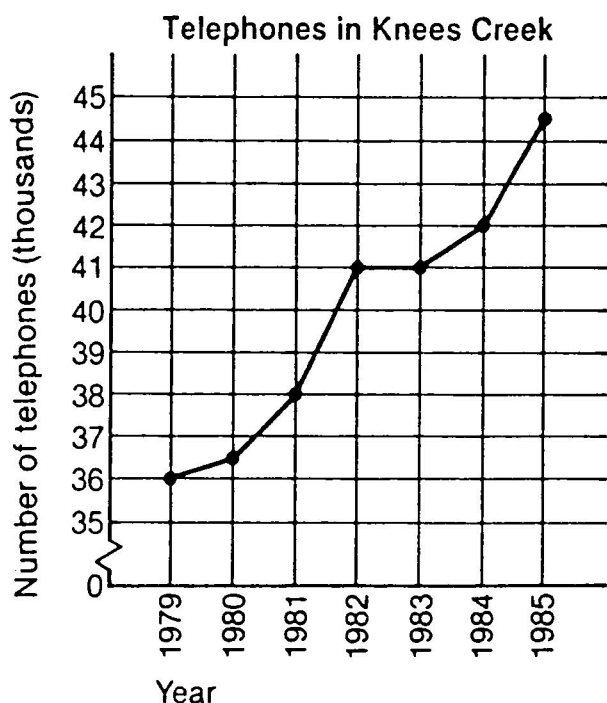
About how many people immigrated in the decade

3. 1871–1880? 3 million
 4. 1881–1890? 5 million
 5. 1941–1950? 1 million
 6. 1951–1960? 2 million
 7. What is the range for the data? 8 million

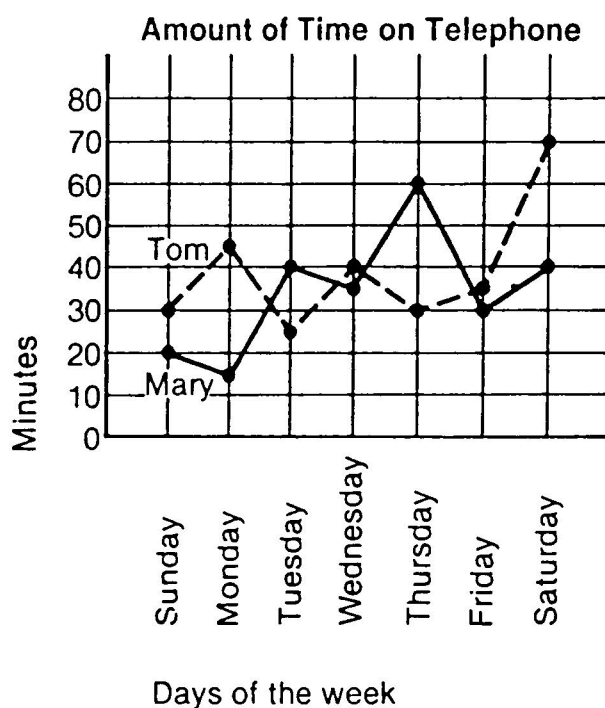
8. During which decade did immigration increase the most?

1901-1910

- A. The **broken-line graph** below shows the number of phones in the town of Knees Creek.



- B. Mrs. Lee recorded the amount of time Mary and Tom spent on the phone during one week.



Use the graph in Example A.

- In which year were there about 36,500 telephones in Knees Creek?
- How many telephones were there in Knees Creek in 1984?
- What is the range of the data?

1980

42,000

8,500

Use the graph in Example B.

- On which day did Mary talk on the telephone for 60 minutes?
- How long did Tom talk on the telephone on Monday?
- On which days did Mary talk longer on the phone than Tom?

Thursday

45 minutes

Tues and Thurs

The graphs show results of a general population survey of health habits.

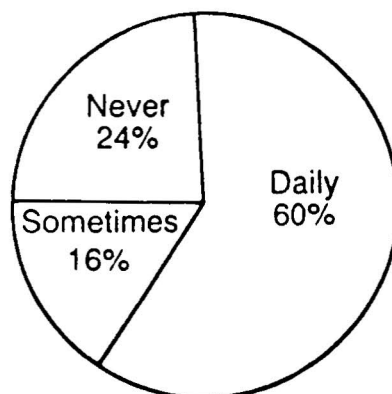
1. About how many people would you expect to eat breakfast daily in a town of 20,000?

12,000 people

2. About how many people would you expect to sometimes eat breakfast in a city of 500,000?

80,000 people

Do You Eat Breakfast?



3. How many degrees are in the central angle for 60%?

216°

In a city of 1,500,000 people, how many would you expect to get

4. less than 7 hours of sleep per day?

322,500 people

5. 7 hours of sleep per day?

420,000 people

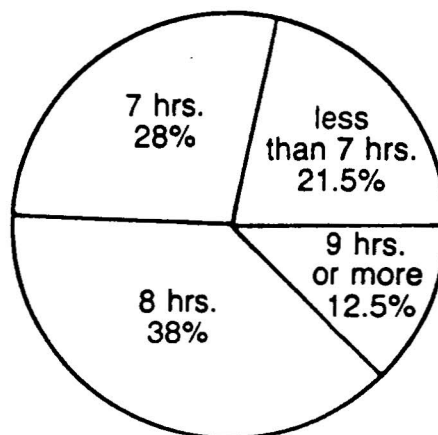
6. 8 hours of sleep per day?

570,000 people

7. 9 or more hours of sleep per day?

187,500 people

How Many Hours Do You Sleep per Day?



8. How many degrees are in the central angle for 12.5%?

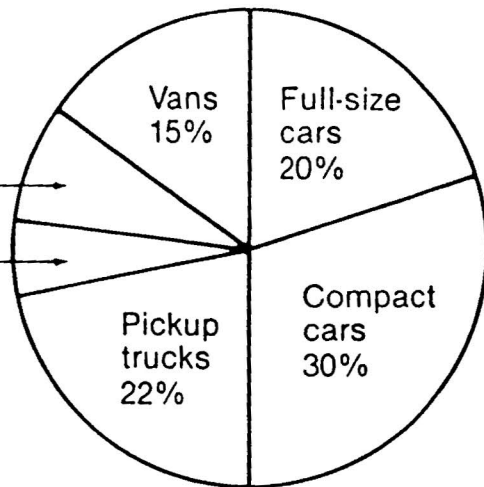
45°

This circle graph show the percent of different vehicles that came to the Petro Service Station last month.

Find each percent of 4,000.

Delivery trucks 8%

Motorcycles 5%



If 4,000 vehicles came to the station last month, how many of them were

1. compact cars?

$$0.30 \times 4,000 = \underline{1,200}$$

2. delivery trucks?

$$0.08 \times 4,000 = \underline{320}$$

3. vans?

$$\underline{600}$$

4. full-size cars?

$$\underline{800}$$

5. motorcycles?

$$\underline{200}$$

6. pickup trucks?

$$\underline{880}$$

If the percentages stayed the same for the next month but only 2,500 vehicles came to the station, how many of the vehicles would you expect to be

Find each percent of 2,500.

7. compact cars?

$$\underline{750}$$

8. delivery trucks?

$$\underline{200}$$

9. vans?

$$\underline{375}$$

10. full-size cars?

$$\underline{500}$$

11. motorcycles?

$$\underline{125}$$

12. pickup trucks?

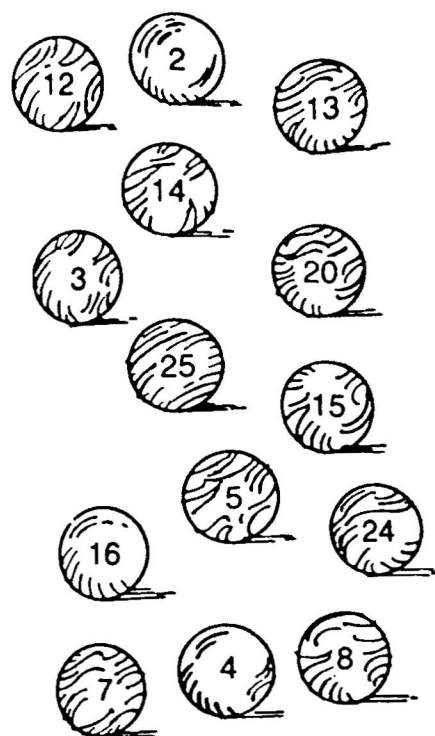
$$\underline{550}$$

Use the pictures on the right to answer the questions.

Each number is written on a marble. The marbles are placed in a hat. One marble will be drawn from the hat at random.

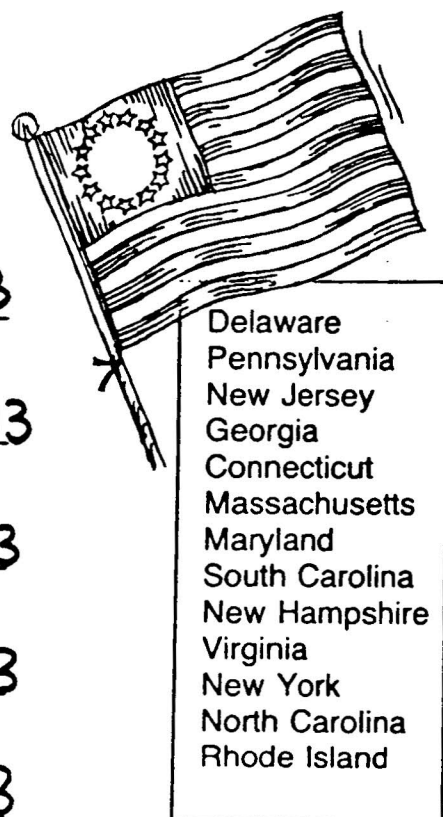
What is the probability of drawing a marble with a number that is

1. a 24? 1:14
2. a prime number? 5:14
3. an 8 or a 16? 1:7
4. an even number? 4:7
5. an odd number? 3:7
6. a number less than 6? 2:7



The marbles are replaced by 13 cards. Each card has the name of one of the original 13 states. Find the probability of drawing a card that shows a state that

- | | |
|---|------------------------------------|
| 7. begins with W. <u>0:13</u> | 8. begins with NEW. <u>3:13</u> |
| 9. ends in g. <u>0:13</u> | 10. contains a vowel. <u>13:13</u> |
| 11. begins with M. <u>2:13</u> | 12. ends in e. <u>2:13</u> |
| 13. has fewer than 6 letters in its name. <u>0:13</u> | |
| 14. has more than 6 letters in its name. <u>13:13</u> | |



Diane placed six cards with these shapes in a box. She chose one card at random, replaced it, and drew another. What is the probability that

1. both shapes were circles?

$$\frac{1}{4}$$

2. both shapes were triangles?

$$\frac{1}{9}$$

3. both shapes were parallelograms?

$$\frac{1}{36}$$

4. after three draws, all shapes were circles?

$$\frac{1}{6}$$

5. after three draws, all shapes were triangles?

$$\frac{1}{27}$$

6. the first draw was a circle, the second draw was a triangle, and the third draw was a parallelogram?

$$\frac{1}{36}$$

7. the first draw was a circle, and the second draw was either a triangle or a parallelogram?

$$\frac{1}{4}$$

Then Diane numbered the triangles and lettered the circles and placed them in separate boxes. What is the probability of drawing

8. an A and a 1?

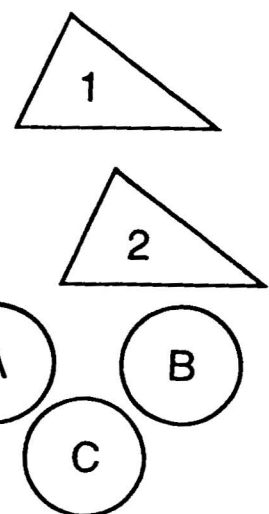
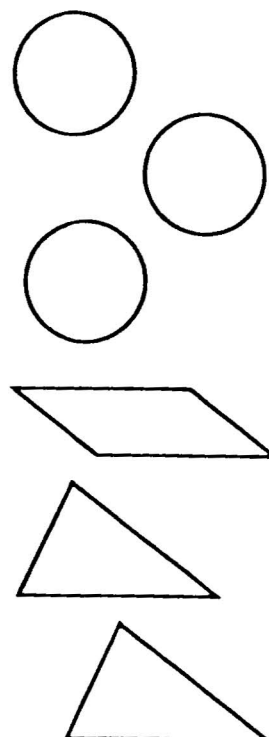
$$\frac{1}{6}$$

9. a B and a 1 or a 2?

$$\frac{1}{3}$$

10. either an A or a C and a 1 or a 2?

$$\frac{2}{3}$$



Maintenance

A box of 10 balls contains 2 red, 3 blue, and 5 green balls. If one ball is chosen at random, what is the probability of choosing

1. a red ball? $\frac{1}{5}$

2. a blue ball? $\frac{3}{10}$

3. a green ball? $\frac{1}{2}$

4. a red ball or a blue ball? $\frac{1}{2}$

There are 28 students in Ms. King's class. 15 of the students are girls. If Ms. King calls on a student at random to work a problem, what is the probability that she will choose

5. a boy? $\frac{13}{28}$

6. a girl? $\frac{15}{28}$

Use the table to give each answer.

If the same number of birds are to be seen at the same feeder this week, what is the probability that the next bird seen will be

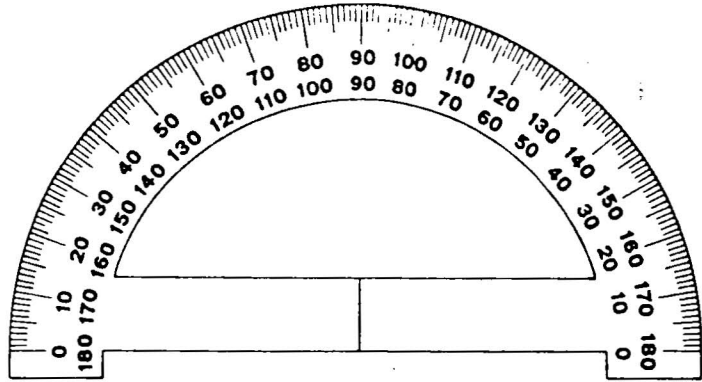
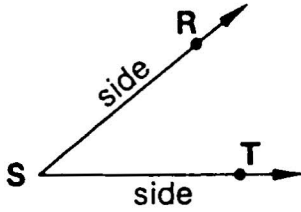
7. a sparrow? $\frac{36}{53}$

8. a robin? $\frac{3}{53}$

Birds seen at feeder during past week	
Type of bird	Number of birds
Sparrow	72
Robin	6
Bluebird	28

Pg. #95

$\overrightarrow{SR}$ and $\overrightarrow{ST}$ form an angle.



The angle can be named $\angle RST$, $\angle TSR$, or $\angle S$.

Use this protractor to measure the angles below.

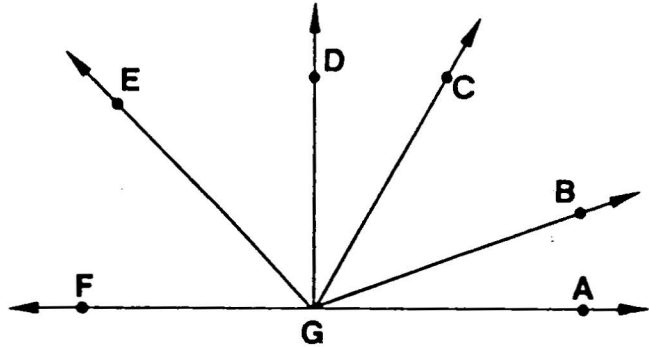
Use the diagram on the right.

1. Give another name for $\angle AGB$.

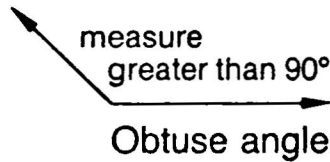
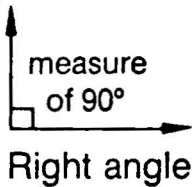
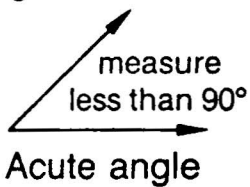
$\angle BGA$

2. Name the sides of $\angle DGB$.

$\overrightarrow{GD}$ and $\overrightarrow{GB}$



Angles can be described by their measures.



Use a protractor to measure each angle. Tell whether the angle is *acute*, *right*, or *obtuse*.

3. $m\angle EGA = 134^\circ$

Obtuse

4. $m\angle DGF = 90^\circ$

Right

5. $m\angle CGB = 40^\circ$

Acute

6. $m\angle FGB = 160^\circ$

Obtuse

7. $m\angle CGA = 60^\circ$

Acute

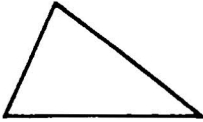
8. $m\angle EGC = 75^\circ$

Acute

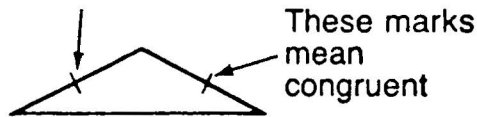
Triangles named by sides

Scalene

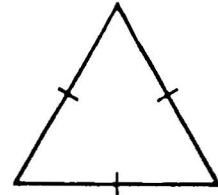
No congruent sides

**Isosceles**

2 congruent sides

**Equilateral Triangle**

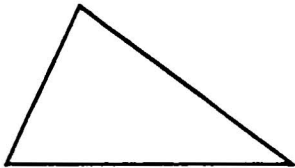
3 congruent sides



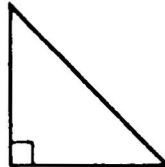
Triangles named by angles

Acute

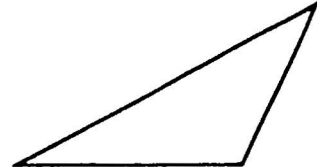
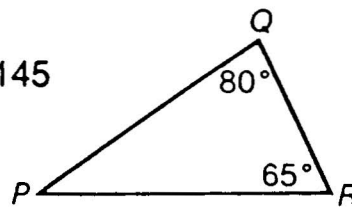
3 acute angles

**Right**

1 right angle

**Obtuse**

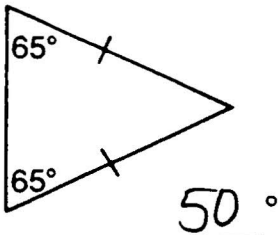
1 obtuse angle

Find $m\angle P$.Add the given measures. $80 + 65 = 145$ Subtract from 180° . $180 - 145 = 35$ $m\angle P = 35^\circ$ 

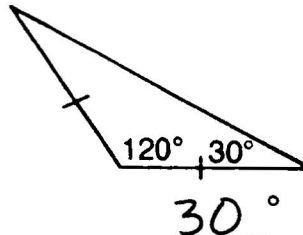
For each triangle, find the missing measure.

Then classify the triangle by its sides and by its angles.

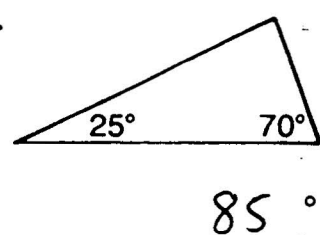
1.

50°AcuteIsosceles

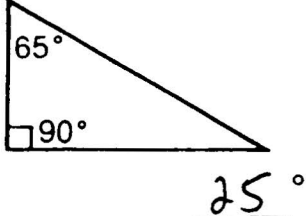
2.

30°IsoscelesObtuse

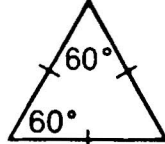
3.

85°ScaleneAcute

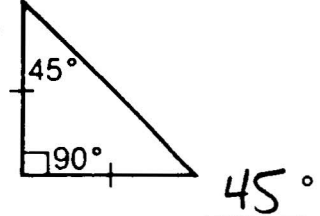
4.

25°ScaleneRight

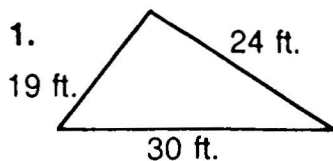
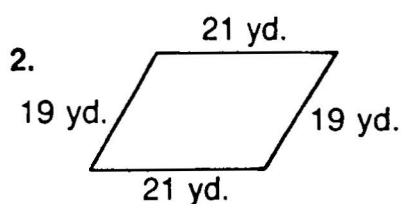
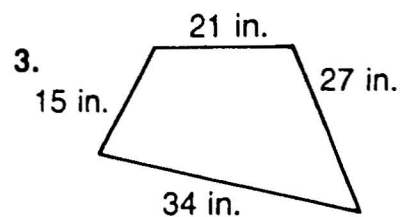
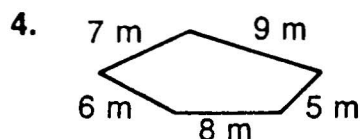
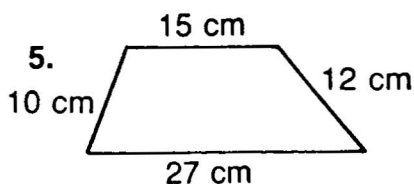
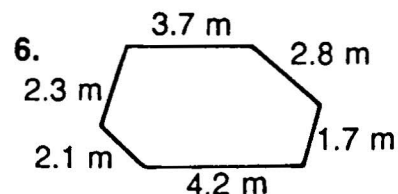
5.

60°EquilateralAcute

6.

45°IsoscelesRight

Find the perimeter of each polygon.

73 ft.80 yd.97 in.35 m64 cm16.8 m

7. A rectangle 0.7 cm by 6.4 cm

14.2 cm

8. A regular pentagon with sides 11.8 feet long

59 ft.

9. A quadrilateral whose sides are 7 cm, 4.2 cm, 12 cm, and 6.9 cm

30.1 cm

10. A rhombus with sides 4 m long

16 m

Solve each problem.

11. How much fencing is needed to enclose a rectangular yard 22 feet by 27 feet?

98 ft.

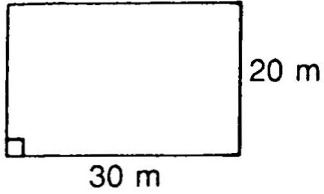
12. How much trim is needed around a rectangular cradle 20 inches by 36 inches?

112 in.

Pg #98

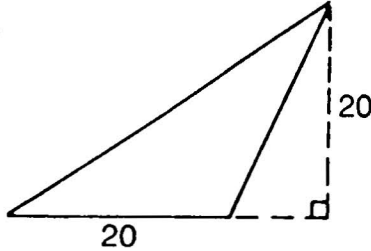
Find the area of each polygon.

1.



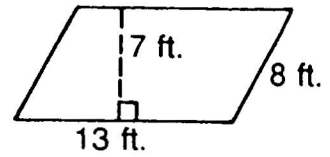
600 m²

2.



200 units²

3.



91 ft²

4. A triangle with base 45 in. and height 24 in.

540 in²

5. A parallelogram with base 1.5 and height 2

3 units²

6. A triangle with base 3.2 cm and height 3.4 cm

5.44 cm²

Solve each problem.

7. Find the area of a square garden, 25 m on a side.

625 m²

8. Find the area of a square table, 120 in. by 120 in.

14,400 sq. in.

9. Find the area of a garden, 49 yd. by 1 yd.

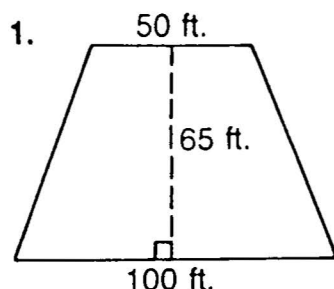
49 sq. yd.

10. Find the area of a square carpet, 2.7 m on a side.

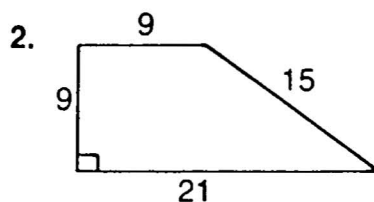
7.29 m²

Pg#99

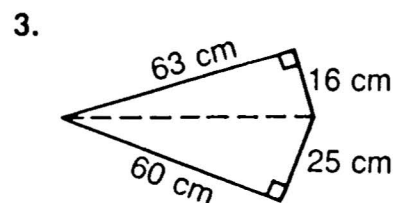
Find each area. Give decimal answers to the nearest tenth.



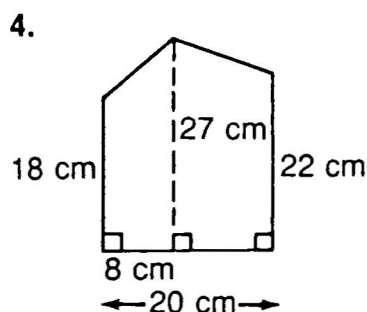
4,875 sq. ft.



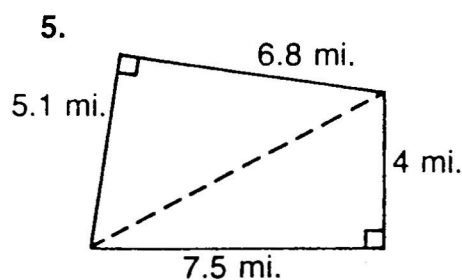
135 sq. units



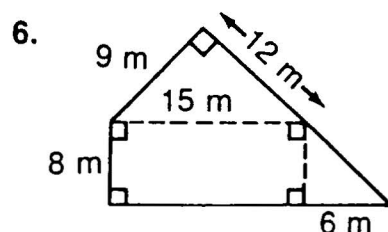
1,254 cm²



474 cm²



32.3 sq. mi



198 m²

7. A trapezoid with bases 40 and 50 and a height of 70

3,150 sq. units

8. A trapezoid with bases 1.5 m and 2.5 m and a height of 2 m

4 m²

9. A trapezoid with bases 20 in. and 30 in. and a height of 30 in.

750 sq. in.

Solve each problem.

10. A seating plan for a piano recital is a trapezoid with bases 4 m and 8 m and a height of 9 m. Find the amount of floor area available for chairs.

54 m²

11. A garden is staked out in the shape of a trapezoid with bases 5 ft. and 7 ft. and a height of $2\frac{1}{2}$ ft. Find the ground area that can be planted.

15 sq. ft.

Find the circumference of a circle with the given diameter d or radius r . Use $3\frac{1}{7}$ or 3.14 for π . Round each decimal answer to the nearest whole unit.

1. $d = 4.2$ m

2. $r = 7$ cm

3. $d = 10.2$ m

4. $d = 8.6$ cm

13 m

44 cm

32 m

27 cm

5. $r = 4$ in.

6. $r = 8$ ft.

7. $d = 2\frac{1}{3}$ yd.

8. $r = 12$ in.

$25\frac{1}{7}$ in

$50\frac{2}{7}$ ft.

$7\frac{1}{3}$ yd.

$75\frac{3}{7}$ in

9. $d = 5.4$ cm

10. $r = 9$ ft.

11. $r = 7.3$ m

12. $d = 22$ in.

17 cm.

$56\frac{4}{7}$ ft.

46 m.

$69\frac{1}{7}$ in

Solve each problem. Use $3\frac{1}{7}$ for π .

13. Find the distance around the rim of a bucket with a diameter of $16\frac{4}{5}$ in.

$52\frac{4}{5}$ in.

14. Find the distance around a record with a radius of $5\frac{3}{4}$ in.

$36\frac{1}{7}$ in

Pg #101

The circumference of a circle is equal to π times the diameter d .

$$C = \pi d$$

Find the circumference of the circle. Use $3\frac{1}{7}$ for π .

$$C = \pi d$$

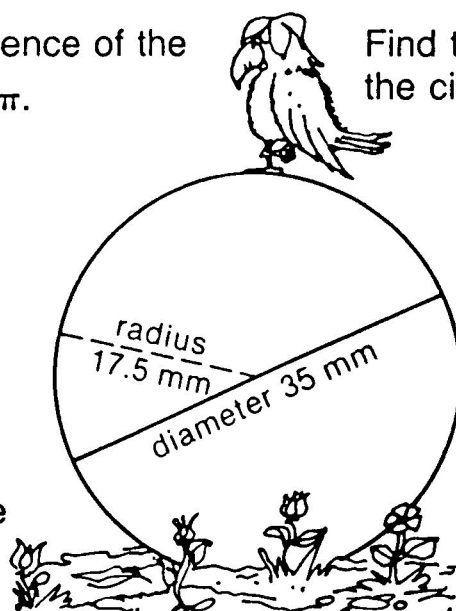
$$C \approx 3\frac{1}{7}(35)$$

$$C \approx \frac{22}{7}(35)$$

$$C \approx \frac{22 \times 35}{7 \times 1}$$

$$C \approx 110$$

The circumference is about 110 mm.



The circumference of a circle is equal to two times π times the radius r .

$$C = 2\pi r$$

Find the circumference of the circle. Use 3.14 for π .

$$C = 2\pi r$$

$$C \approx 2(3.14)(17.5)$$

$$C \approx 109.9$$

The circumference is about 110 mm.

Find the circumference of each circle.

Use $3\frac{1}{7}$ for π in Exercises 1–3. Use 3.14 for π in Exercises 4–9. Round each decimal answer to the nearest whole unit.

1. Diameter: 14 dm

$$c \approx \underline{44 \text{ dm}}$$

2. Radius: 21 cm

$$c \approx \underline{132 \text{ cm}}$$

3. Diameter: 42 mm

$$c \approx \underline{132 \text{ mm}}$$

4. Radius: 10 m

$$c \approx \underline{63 \text{ m}}$$

5. Diameter: 30 mm

$$c \approx \underline{94 \text{ mm}}$$

6. Radius: 9 km

$$c \approx \underline{57 \text{ km}}$$

7. Radius: 4.5 mm

$$c \approx \underline{28 \text{ mm}}$$

8. Diameter: 2.4 cm

$$c \approx \underline{8 \text{ cm}}$$

9. Radius: 0.7 mm

$$c \approx \underline{4 \text{ mm}}$$

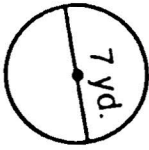
Skill #18

Name _____

P98

Find the area of a circle with the given diameter d or radius r . Use $3\frac{1}{7}$ or 3.14 for π . Round each decimal answer to the nearest tenth.

1.



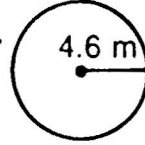
$38\frac{1}{2}$ sq. yd.

2.



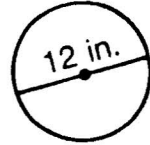
13.8 m²

3.



66.4 m²

4.



$113\frac{1}{7}$ sq. in.

5. $d = 10.4$

84.9 sq. units

6. $r = 4\frac{1}{2}$ in.

$63\frac{9}{4}$ sq. in.

7. $r = 8.7$ mm

237.7 mm²

8. $d = 14$ yd.

154 sq. yd.

9. $d = 10$ in.

$78\frac{4}{7}$ sq. in.

10. $r = 11$

379.9 sq. units

11. $d = 6.8$ m

36.3 m²

12. $r = 17$ mi.

$907\frac{1}{2}$ sq. mi.

Solve each problem. Use $3\frac{1}{7}$ for π .

13. A circular patio has a radius of 12 ft. What is the area of the patio?

$452\frac{4}{7}$ sq. ft.

14. The bottom of a large planter is circular with a diameter of 26 in. What is the area of the bottom?

$531\frac{1}{7}$ sq. in.

Pg# 103

Find the area of the circle.

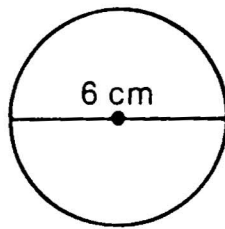
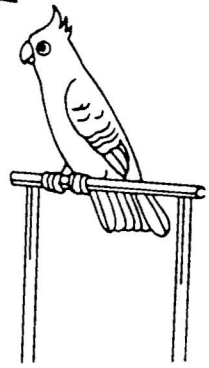
Use 3.14 for π .

$$A = \pi r^2$$

$$A \approx 3.14(3^2)$$

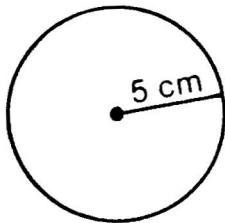
$$A \approx 3.14(9)$$

$$A \approx 28.26$$

The area is about 28.3 cm^2 .The radius is
one half the
diameter.The area of a circle is
equal to π times the
radius r squared.Find the area of each circle. Use 3.14 for π .

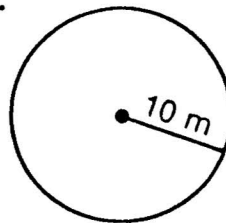
Round each decimal answer to the nearest tenth.

1.



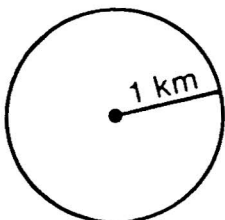
$$A \approx \underline{78.5 \text{ cm}^2}$$

2.



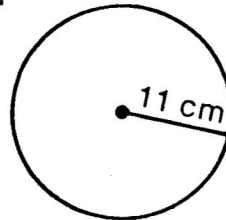
$$A \approx \underline{314 \text{ m}^2}$$

3.



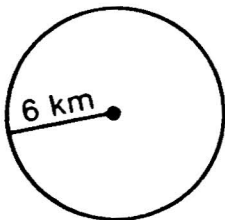
$$A \approx \underline{3.1 \text{ km}^2}$$

4.



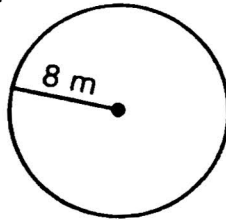
$$A \approx \underline{379.9 \text{ cm}^2}$$

5.



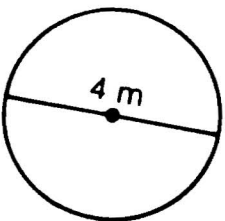
$$A \approx \underline{113 \text{ km}^2}$$

6.



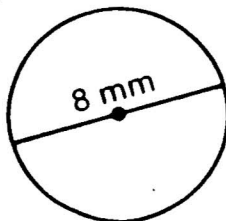
$$A \approx \underline{201 \text{ m}^2}$$

7.



$$A \approx \underline{12.6 \text{ m}^2}$$

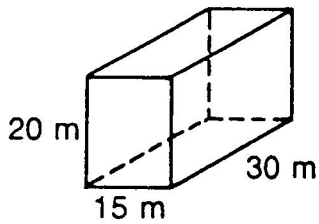
8.



$$A \approx \underline{50.2 \text{ mm}^2}$$

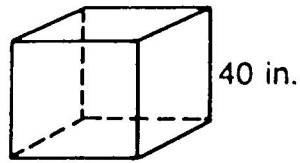
Find the surface area of each polyhedron.
Give decimal answers to the nearest tenth.

1. Rectangular prism



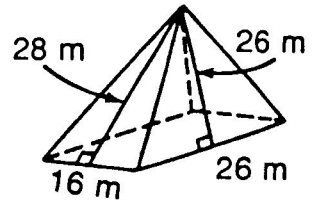
$$\underline{2,700 \text{ m}^2}$$

2. Cube



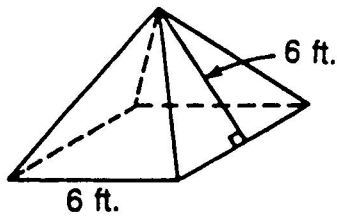
$$\underline{9,600 \text{ in}^2}$$

3. Rectangular pyramid



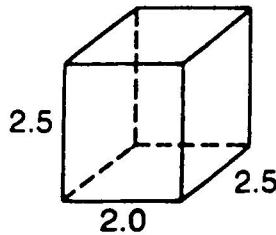
$$\underline{1540 \text{ m}^2}$$

4. Square pyramid



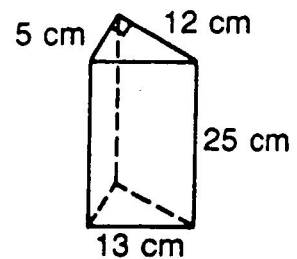
$$\underline{108 \text{ ft}^2}$$

5. Rectangular prism



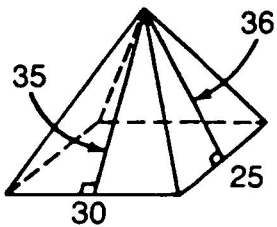
$$\underline{32.5 \text{ units}^2}$$

6. Triangular prism



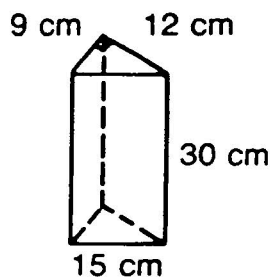
$$\underline{810 \text{ cm}^2}$$

7. Rectangular pyramid



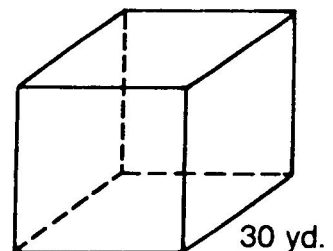
$$\underline{2,700 \text{ units}^2}$$

8. Triangular prism



$$\underline{1,188 \text{ cm}^2}$$

9. Cube

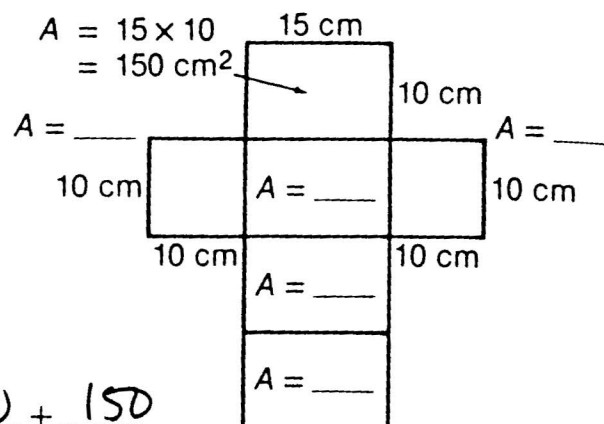
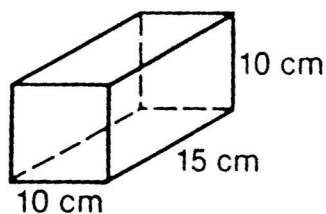


$$\underline{5,400 \text{ yd}^2}$$

Pg #105

Find the *surface area* of each polyhedron.

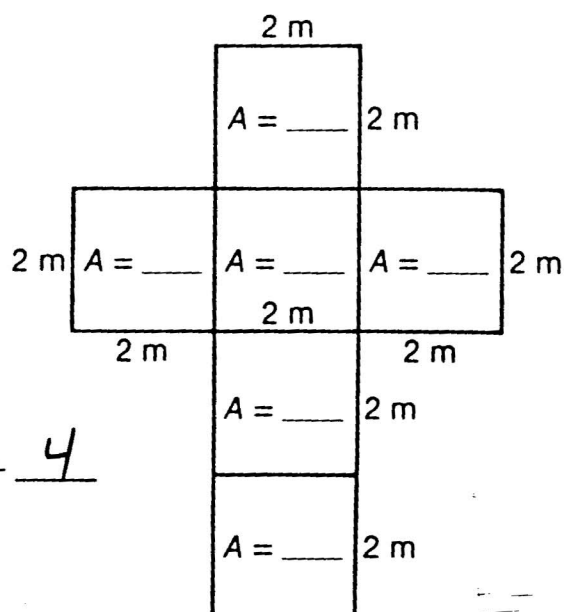
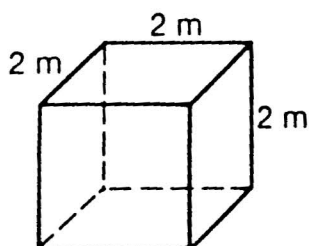
1.



$$\text{Area} = \underline{150} + \underline{100} + \underline{150} + \underline{100} + \underline{150} + \underline{150}$$

$$= \underline{800} \quad \text{The area is } \underline{800} \text{ cm}^2.$$

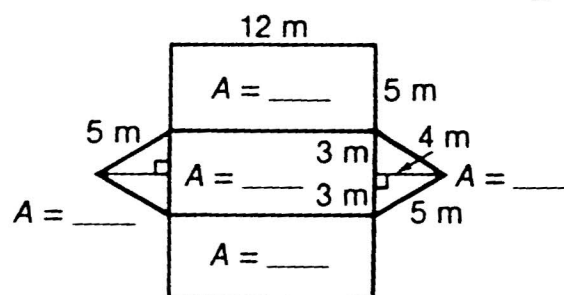
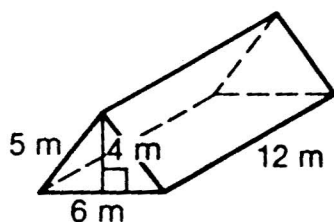
2.



$$\text{Area} = \underline{4} + \underline{4} + \underline{4} + \underline{4} + \underline{4} + \underline{4}$$

$$= \underline{24} \quad \text{The area is } \underline{24} \text{ m}^2.$$

3.



$$\text{Area} = \underline{60} + \underline{72} + \underline{12} + \underline{12} + \underline{60}$$

$$= \underline{216} \quad \text{The area is } \underline{216} \text{ m}^2.$$

The volume of any prism or cylinder is equal to the area of the base times the height.

Triangular prism

Base: triangle $B = \frac{1}{2}bh$

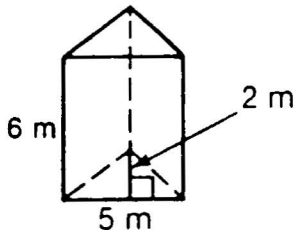
$$V = Bh$$

$$V = \left(\frac{1}{2}bh\right)(h)$$

$$V = \frac{1}{2}(5)(2)(6)$$

$$V = 30$$

The volume is 30 m^3 .



Cylinder

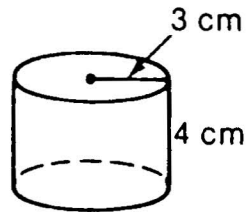
Base: circle $B = \pi r^2$

$$V = Bh$$

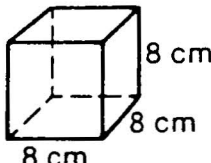
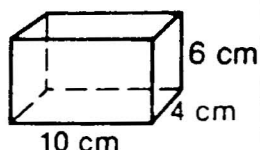
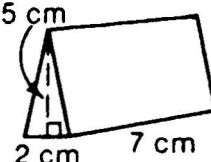
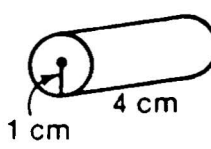
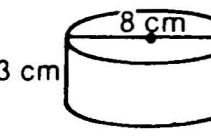
$$V \approx 3.14(3)^2(4)$$

$$V \approx 113.04$$

The volume is about 113.04 cm^3 .



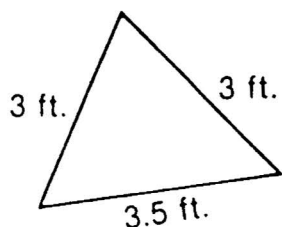
Find the volume for each figure. Use 3.14 for π .

Figure	Area of base (cm^2)	Height (cm)	Volume (cm^3)
1. 	64 cm^2	8 cm	512 cm^3
2. 	40 cm^2	6 cm	240 cm^3
3. 	5 cm^2	7 cm	35 cm^3
4. 	3.14 cm^2	4 cm	12.56 cm^3
5. 	50.24 cm^2	3 cm	150.72 cm^3

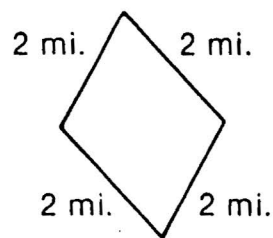
Maintenance

Find the perimeter of each polygon.

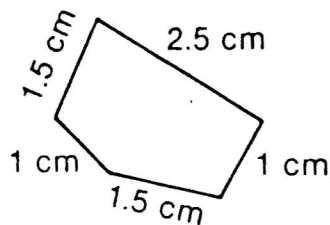
1.

9.5 ft

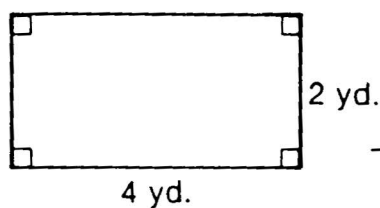
2.

8 mi.

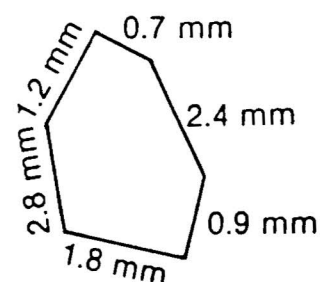
3.

7.5 cm

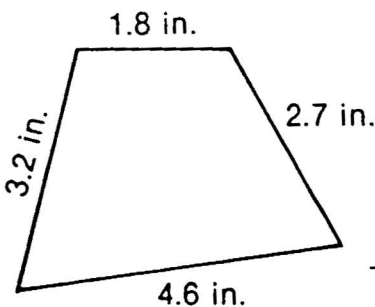
4.

12 yd.

5.

9.8 mm

6.

12.3 in.

Solve each problem.

7. How much fencing is needed for a rectangular garden plot that is 7 feet by 9 feet?

32 ft.

8. Sandy put molding on both the inside and outside of a doorway that measures 3 feet by 8 feet. He did not put molding along the bottom. How much molding did he use?

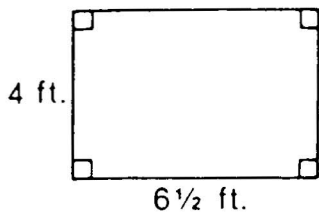
38 ft.

Pg. #100

Maintenance

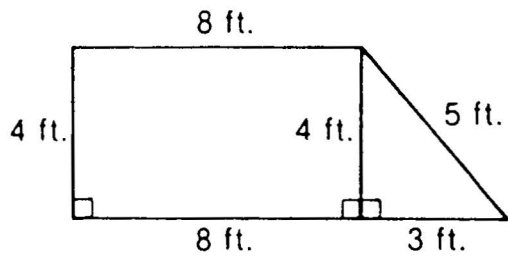
Find the area of each polygon.

1.



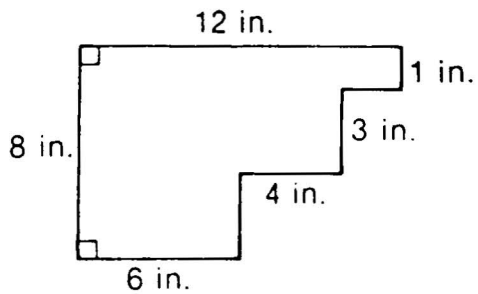
$$26 \text{ ft}^2$$

2.



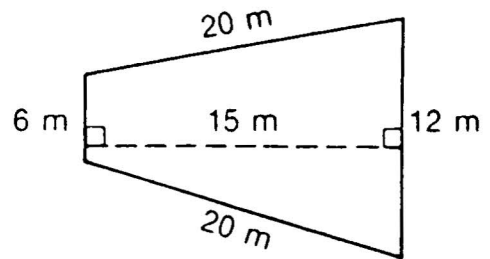
$$38 \text{ ft}^2$$

3.



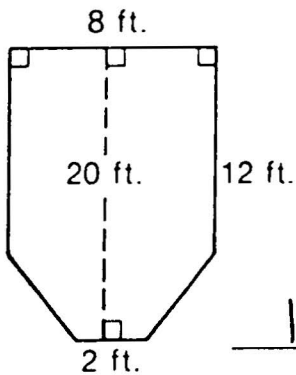
$$66 \text{ in}^2$$

4.



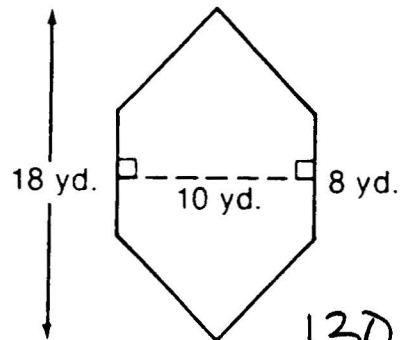
$$135 \text{ m}^2$$

5.



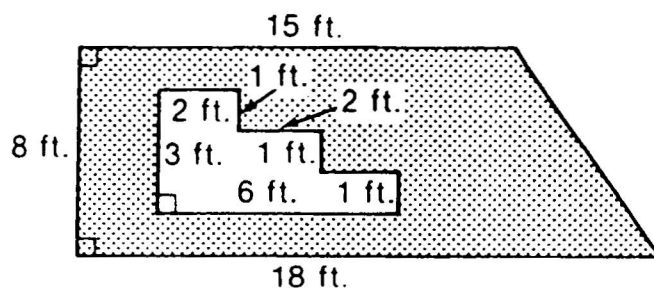
$$136 \text{ ft}^2$$

6.



$$130 \text{ yd}^2$$

7. Find the area of the shaded region.



$$120 \text{ ft}^2$$

Pg. #109