CPM Algebra 1 Chapter 5 Group Test

Work as a team to solve the following problems. Each student must write out the complete solution for each problem on her/his own paper. Be sure to write clear, organized responses.

- 1. Using a set of Algebra Tiles, arrange the tiles pictured at right into one large rectangle.
 - a. On your paper, sketch your rectangle.
 - b. What are the dimensions (length and width) of the rectangle you made? Label your sketch with its dimensions.



c. Write a *length* \cdot *width* = *area* statement showing that *area as a product* = *area as a sum*.

[b: (x+2)(y+3), c: (x+2)(y+3) = xy+3x+2y+6]

2. Joanne and Jermaine studied a rectangle formed by algebra tiles. They disagree about the correct expression for the tiles. Joanne wrote the expression 2y + xy + x² + 2. Jermaine wrote the expression 2y + xy + x² + 2 + 3x. Who is correct? How can you be sure? Explain your reasoning.

[Jermaine's rectangle can be built: $(x+2)(y+x+1) = xy+x^2+2+3x+2y$. Joanne's expression does not form a rectangle.] 3. Given the following two clues, show all four representations (tile pattern, table, rule, graph) of the pattern. Write a few sentences explaining how you figured out the pattern.



[y = -x + 10]

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- The equation -6x + 3y = 9 is written in standard form.
 - a. Predict the growth rate and the *y*-intercept.
 - b. The same equation is shown on the equation mat at right. With your team, set up this equation on your equation mat using tiles. Then rearrange the tiles to get y by itself on



the left side of the mat. Record each of your moves algebraically.

c. Use your results in part (b) to find the growth factor and the y-intercept of the line -6x + 3y = 9. Did your results match your prediction?

[b: y = 2x + 3, c: growth factor = 2, y-intercept = (0, 3)]

5. Poor Petunia! She took out her partially completed homework only to discover that she left her math book at school. She knows that the 12, 45 and 340 came from the question in the book but she can't remember anything else.

People
45
22.5
11.25
340

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- a. What is she supposed to find in this problem? Write a question that the math book could have been asking.
- b. Does Petunia's solving strategy make sense? Explain.
- c. Solve the problem. Be sure to label and justify your work.

[a: Possible problem: If 12 pints of ice cream will feed 45 people, how many pints of ice cream will you need to feed 340 people? B: Opinions vary. Look for logical arguments for or against the method. c: It will take $90\frac{2}{3}$ pints of ice cream to feed 340 people. Methods vary.]

6. Solve the following equations for the indicated variable. Show all of your work.

- a. Solve for x: 2(x + 1) = x + 12 b. Solve for y: -8x 2y = -4
- c. Solve for *m*: 4p = 4 + 2(m p) d. Solve for *x*: y = 4x + 3

[a: x = 10, b: y = -4x + 2, c: m = 3p - 2, d: $x = \frac{1}{4}y - \frac{3}{4}$]