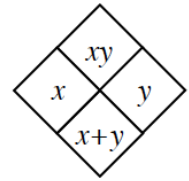


**Pre-Algebra Problem Set 15**

First Name \_\_\_\_\_ Last \_\_\_\_\_

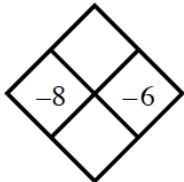
Assigned Thursday 1/9/20, due Friday 1/17

**NO Work Shown, NO Credit Given**

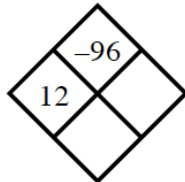


1. Complete each of the Diamond Problems below. The pattern used in the Diamond Problems is shown at right.

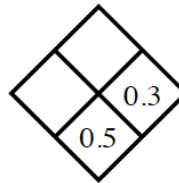
a)



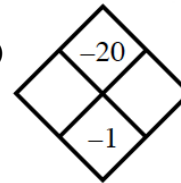
b)



c)



d)

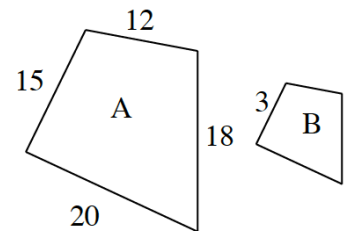


2. Alex is looking at this parallelogram.  He needs to make several different figures that are similar to it.

- a) If he uses the scale factor  $\frac{3}{4}$ , will the new shape be larger or smaller than the original?
- b) List two different scale factors Alex could use to make a larger shape.
- c) List two different scale factors Alex could use to make a smaller shape.

3. Figures A and B are similar. Assume that figure A is the original figure.

- a) Find the scale factor.
- b) Find and label the lengths of the missing sides of figure B.



4. Write the mathematical property that justifies each equation.

- a)  $7 \cdot 2 + 4 - 2(7 + 3) = 7 \cdot 2 + 4 - 2(7) - 2(3)$
- b)  $18 + 12 + -8 = 18 + -8 + 12$
- c)  $(8 + -12) + 10 + 2 = 8 + (-12 + 10 + 2)$
- d)  $9(605) = 9(600) + 9(5)$

-----The work for problems #5 - #13 needs to be attached on a separate piece of paper.-----

5. Simplify each expression.

- a)  $-2 + 5 + -8$
- b)  $(-10)(-9)(-8)$
- c)  $4 - (-3) - 7$
- d)  $10 + (-2) - 7$
- e)  $-5 - 3(2 - 6)$
- f)  $(3 - 2 - 1)(10^3 - 11)$
- g)  $(-3)^3 - (-4)^2$
- h)  $-2 + -8(7 - 19)$

6. Complete each portion web.  $\frac{7}{50}$     0.7    7%     $\frac{17}{1000}$     0.314     $\frac{1}{8}$

7. Amy's rectangular living-room floor measures 21 feet by 30 feet.

- a) How many square feet of AstroTurf will Amy need to cover the entire floor?
- b) The AstroTurf Amy likes is sold by the square yard. How many square yards will she need?

8. Evaluate each expression when  $a = -9$ ,  $b = 6$ ,  $x = -7$ , and  $y = -12$ .

a)  $b - x - y$

b)  $|a - b| + |x - y|$

c)  $b - 3\frac{8}{19}$

d)  $ab^2$

e)  $y^2 - x$

f)  $a + x(b - y)$

9. Evaluate each expression when  $a = 2\frac{1}{4}$ ,  $b = 2\frac{2}{5}$ ,  $c = 12$ .

a)  $ab$

b)  $c - b$

c)  $a + b + c$

d)  $b - c$

e)  $ac$

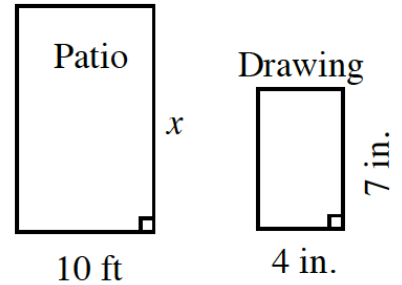
f)  $c \div b$

g)  $b \div c$

h)  $abc$

i)  $a \div c$

10. Daniel needed to paint his patio, so he made a scale drawing of it. He knows the width of the patio is 10 feet, but the scale drawing is in inches.



a) Find the length of the patio in feet.

b) Find the area of the patio so Daniel knows how much paint to buy.

c) One can of paint covers 125 square feet. How many cans of paint will Daniel need to buy?

11. Sammy is training for a running race. Today he ran  $2\frac{3}{5}$  miles in 20 minutes. What is his pace in miles per hour?

12. In a recent snail race, the winning snail traveled 5.7 cm in half of a minute. How fast was the snail traveling in centimeters per second?

13. Kris said, "*The Rawlings Rockets basketball team does not have any really tall players.*" These are the player's heights in inches: 70, 77, 75, 68, 88, 70, and 72.

a) Which number does not seem to fit this set of data? This is called an "outlier".

b) Do you agree or disagree with Kris? Explain.

c) Find the mean player height in inches. You may use a calculator.

d) Find the median player height in inches. You may use a calculator.

e) Find the range of heights on the Rawlings Rockets. You may use a calculator.

