Pre-Algebra Problem Set 11   First Name_____ Last_____
Assigned Wednesday 11/20, due Friday 12/6 (Two weeks due to Thanksgiving)

1. Find the reciprocal of each number below.

a) $\frac{3}{4}$ **b)** $\frac{1}{12}$ **c)** 3   **d)** $2\frac{5}{8}$ **e)** $10\frac{7}{9}$

f) Multiply 8 by its reciprocal, and show that the product of the numbers is 1.

2. How many terms are in each expression? Circle each term.

a) $-8 + 2(-5)$ **b)** $3(7.5 + 2) + 4.6$ **c)** $4\frac{1}{2}(-2 + 1 + 7)$ **d)** $5(6 + 2) + 4 + 2(-5 + 8)$

-------**The work for problems #3 - #14 needs to be attached on a *separate piece of paper*.**------

**3.** Simplify each expression above (in #2) *on a separate piece of paper.*

a) $-8 + 2(-5)$ **b)** $3(7.5 + 2) + 4.6$ **c)** $4\frac{1}{2}(-2 + 1 + 7)$ **d)** $5(6 + 2) + 4 + 2(-5 + 8)$

4. Evaluate each expression when x = 2 and y = 1.

a) $4x - 3y + 7$ **b)** $2y^2$ **c)** $x^3 - x$ **d)** $\frac{x+y}{x-y}$ **e)** $|x - y| + |y - x|$

5. Jorge was thinking about using variables to represent lengths of a tightrope walker's tricks.
a) Jorge wrote the expression $x + x + x + x + 3$ to represent the sequence
shown in the diagram at right. Does his expression make sense? *Explain.*
b) Write an expression to represent the sequence shown in the diagram below.
c) In part (a), if $x = 5$ feet, how long is the tightrope?
d) In part (b), if $j = 3$ feet and $k = 2$ feet, how long is the tightrope?
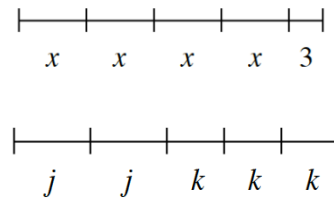
6. Simplify each expression. *Show your work.*

a) $3\frac{3}{5} \cdot 4\frac{1}{6}$ **b)** $920 - 3\frac{5}{9}$ **c)** $111\frac{5}{6} + 222\frac{3}{8}$ **d)** $\frac{2}{3}$ of 15   **e)** $\frac{2}{3}$ of 20

7. Find the mean, range, and median of the values: 12, 4, −2, 0, 9, −2, 1, 7, 9, 2. Recall that the range is calculated by finding the difference between the largest and smallest data values.

8. Carla is drawing a card from a standard deck of playing cards. Find each probability below as a fraction. A standard deck has 52 cards, with four suites (diamonds, hearts, clubs and spades).
a) What is the probability that she will draw a heart?
b) What is the probability that she will not draw a king?
c) What is the probability that she will draw the king of hearts?

9. Make a portion web for each number.

   a) 129%   **b)** 0.007   **c)** $\frac{5}{6}$ **d)** 3.5%   **e)** $0.\overline{25}$

10. Simplify each expression. *Show your work.*

a) $3 + 4(10 - 8)$ **b)** $3 + 4 \cdot 10 - 8$ **c)** $(3 + 4)(10 - 8)$ **d)** $(3 + 4)10 - 8$

11. Write at least three expressions that use each of the numbers 2, 3, 6, and 8 exactly once and any operations and grouping symbols (addition, subtraction, multiplication, division, and parentheses). Each expression should have a <u>different</u> value, with one expression equal to 28.

12. Find the missing information from the following relationships.

a) Mark has downloaded four times as many songs on his music player as Chloe. If Mark has 440 songs, how many songs does Chloe have?

b) Cici likes to collect shoes, but she only has half the number of pairs of shoes that her friend Aubree has. If Cici has 42 pairs of shoes, how many pairs of shoes does Aubree have?

c) Tito walked three more miles than Danielle. If Danielle walked 2 miles, how far did Tito walk?

13. One third of a rectangular playground is designed for young children. In that part of the playground, a play structure covers $\frac{2}{5}$ of the children's space.

a) Use a **drawing** to represent the portion of the playground that is the play structure.

b) Represent the problem with multiplication.

c) What fraction of the total playground is the play structure? Show all of your work.

14. Dante is ordering wood flooring for his bedroom, which is shaped like a trapezoid (shown below). If the flooring materials cost $5 per square foot, how much should he expect to pay for the materials?

10 ft

10 ft

16 ft