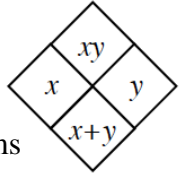**Pre-Algebra Problem Set 10   First Name_____ Last_____**

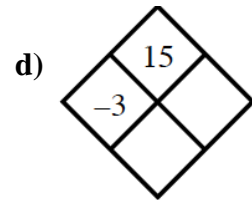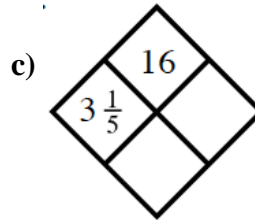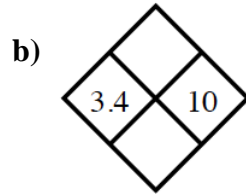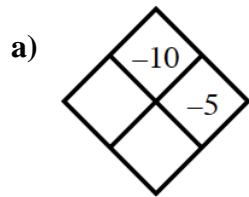Assigned Thursday 11/14, due Friday 11/22

**You will need graph paper for this homework.**

Problems #1-6 can be completed on this paper. The work for problems #7-12 needs to be attached on a *separate piece of paper*.

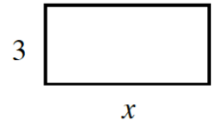**1.** Complete each of the Diamond Problems below.  The pattern used in the Diamond Problems is shown at right.

**a)**  −10   −5

**b)**  3.4   10

**c)**  16   $3\frac{1}{5}$

**d)**  15   −3

**2.** Simplify each of the following expressions without using a calculator.

**a)** −6(3)      **b)** 6(−3)      **c)** −8(−4)      **d)** (−2)(−2)(−2)      **e)** (−2)(−3)(−4)(−5)

**3.** Calculate the perimeter and area of the rectangle for the given $x$-values.

**a)** $x = 5$

Area =

Perimeter =

**b)** $x = 9$

Area =

Perimeter =

**c)** $x = 4.6$

Area =

Perimeter =

3

$x$

**4.** Linh has a bag of beads that contains 10 glass beads, 7 metal beads, 15 plastic beads, and 3 clay beads.  For each part below, if the bead selected is replaced before the next draw, what is the fractional probability that Linh will pull out a:
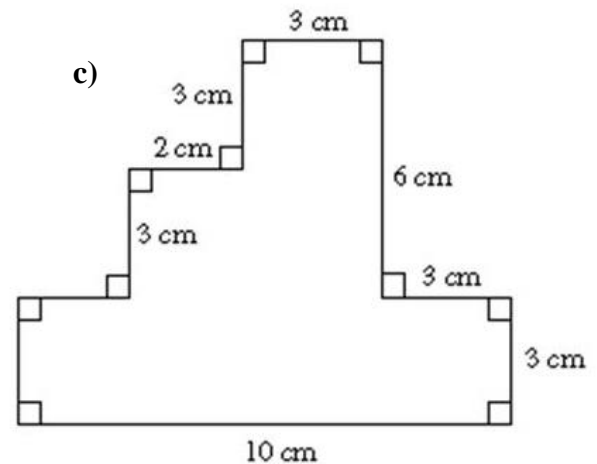
**a)** Metal bead?          **b)** Bead that is not plastic?          **c)** Glass or plastic bead?

**5.** Find the reciprocal of each number below.

**a)** $\frac{6}{13}$          **b)** $\frac{1}{5}$          **c)** 2          **d)** $2\frac{5}{8}$          **e)** $10\frac{7}{9}$

**f)** Multiply $\frac{5}{7}$ by its reciprocal, and show that the product of the numbers is 1

**6)** Find the area of each figure below.

**a)**

13 mm   11 mm   12 mm   14 mm   18 mm

**b)**

10 cm   4 cm   10 cm   15 cm

**c)**

3 cm   3 cm   2 cm   3 cm   6 cm   3 cm   3 cm   10 cm
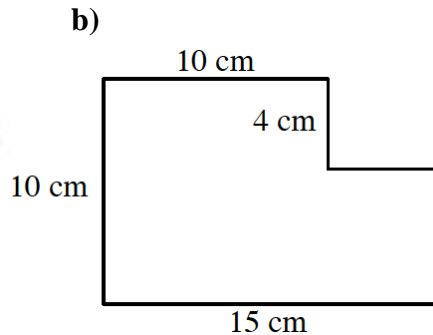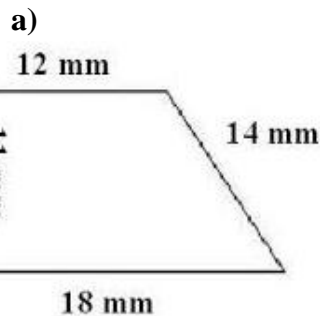
**6.** Create a portion web for each number below.

**a)** $\frac{7}{8}$          **b)** 270%          **c)** 0.123          **d)** $\frac{5}{6}$          **e)** 7.7%          **f)** $0.\overline{123}$

**7.** Simplify the following fraction expressions.  Show all of your work.

**a)** $55\frac{3}{4} + 82\frac{2}{3}$          **b)** $197\frac{3}{4} - 80\frac{1}{5}$          **c)** $1\frac{3}{5} \cdot \frac{1}{3}$          **d)** $\frac{4}{7} \cdot 20$          **e)** $\frac{1}{2} + \frac{1}{8} + \frac{3}{4}$

**8.** The highest point in the United States is Mount McKinley, also called Denali, in Alaska.  Its summit is 20,335 feet above sea level.  Badwater, a basin located in Death Valley, is the lowest point in the United States at 282 feet below sea level.  How high is the summit of Denali above the Death Valley location?  Show your calculations.

**9.** Nathan wants you to solve this puzzle: *"I am thinking of a number.  If you divide my number by 3 and add –3, you will get 4.  What is my number?"*  Show all of your work.

**10.** Find the distance between each pair of points if they were graphed on a number line.

**a)** 11.54 and −2.3          **b)** −40 and −3.14          **c)** 37 and 1.98

**11.**  Troy is a fan of baseball, and his favorite player is Moe Jauer of the Minnesota Triplets.  Troy made a table displaying how many home runs Jauer hit during his first five seasons.  Graph Troy's data on *graph paper*. (The data will not form a line.)

| Season | Home Runs |
| --- | --- |
| 1 | 6 |
| 2 | 9 |
| 3 | 13 |
| 4 | 7 |
| 5 | 9 |

**12.** Sara turned in the two graphs below for homework, but her teacher marked them wrong. Explain to Sara what mistakes she made.

**a)**



**b)**