Math Concepts Problem Set 1
Assigned Friday 9/6, due Friday 9/13
No Work Shown, No Credit Given

Name

## Period

The work for problems \#1-\#4 needs to be attached on a separate piece of paper.

1. Janelle wants to challenge you to a "Toothpick and Tiles" game. Using exactly four tiles, solve her challenges below. Justify your answers with pictures and labels.
a. Create a tile pattern where the number of toothpicks is exactly double the number of tiles.
b. Create a tile pattern where the number of toothpicks is more than double the number of tiles.
2. In the "Toothpick and Tiles" game, you looked at the number of square tiles and the number of toothpicks used to form shapes. The math words that describe the number of tiles and toothpicks are area and perimeter.
a. Find the area and perimeter of the tile figure at right
b. Find the area and perimeter of the rectangle at right.

c. Design your own shape with five tiles. Record the perimeter and the area.

3. Consider the first three figures of the pattern below.


Figure 1


Figure 2


Figure 3
a. On your own paper, draw what Figure 4 of this pattern.
b. Use words to describe what Figures 5 and 6 look like.
c. Use words to describe how the pattern is changing.
4. Vi is trying to figure out how a square can be divided into four equal parts. Show her at least three different ways to divide a square into four equal parts.
5. The value of a decimal becomes clearer when the place value is spoken or written as the number it names. For example, 0.1 makes more sense if it is read as "one tenth" rather than "zero point one."
a. Write the following numbers in words so that the place value can be identified:
0.4
0.03
0.007
0.11
0.019
6. Now reverse your thinking. Write the decimals that go with the following words:
five hundredths four thousandths two tenths twelve hundredths

Problems 7-\#9 can be completed on this paper.
7. Find the perimeter of each figure below. The markings on part (b) mean that the lines are parallel. The markings on part (e) show that all sides are the same length. As you find each perimeter, be sure to show your work.
a.

b.

c.

5 in.
d.

e.

f.

8. For each shape drawn in problem \#7, choose one of the labels below that best describes that shape. Be as specific as you can. Look up the definitions on your iPad for more information if you do not remember what one of the words describes.

| right triangle | scalene triangle | obtuse triangle |
| :--- | :--- | :--- |
| isosceles triangle | rhombus | rectangle |
| square | trapezoid | hexagon |

9. The band students at Tolt Jr. High and Maywood Middle School have been invited to participate in the Evergreen Music Festival in Seattle. Each group has decided to have a car wash to raise money to pay for the trip. Use the graph below to answer the following questions.
a. Which school washed more cars?
b. Which school has raised the most money so far?
c. Additional Challenge: How much is each school charging to wash one car?

