Module 0.3
Relationships Between Quantities and Expressions

Name: _____

The base of an isosceles triangle can be expressed as "the product of 6 and a number increased by 8." The legs of the isosceles triangle can be expressed as "4 less than twice a number." Use the information to label the triangle below.

1. Use the diagram to write and simplify the expression that represents the perimeter of the triangle.

$2x-4+2x-4+6x+8=$ add all sides

$10x$

2. Sally wrote the following expression as her answer to #1. How could she obtain this expression from the diagram?

$$P = 2(2x-4)+(6x+8)$$

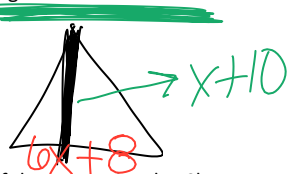
She wrote a 2 in front of the legs b/c they are the same. She added the base.

3. Simplify Sally's expression. How does this compare to your simplified expression for the perimeter in #1?

$2(2x-4)+(6x+8)$

$4x-8+6x+8=10x$

4. The height of the triangle is "10 greater than a number." Write and simplify the expression to represent the area of the triangle.



Area $\Delta = \frac{1}{2}bh$

$\frac{1}{2}(6x+8)(x+10)$

5. Jill was trying to find the area of the same triangle. She wrote the following expression and then simplified.

$A = 2(6x-8)(2x-4)$ (B, h)

$A = 24x^2+16x-64$

How would you explain Jill's misconception(s) to her?

Base → $6x+8$
She wrote $6x-8$

$\frac{1}{2}$ → she doubled it Rather than $\frac{1}{2}$

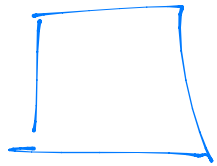
height → should be $x+10$ but she used the leg.

Multiply

① $(3x^2 - 4)(2x + 7)$

② Perimeter

Rectangle



$38x - 14$

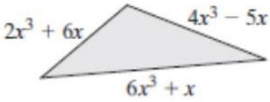
2 sides = $7x + 1$ each

Find other 2 sides

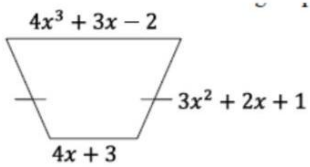
GSE Algebra 1 **0.3** - ***Perimeter*** and ***Area*** (**polys**) **HW** Name: _____

Write an expression for the perimeter.

1.)

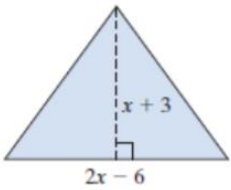


2.)

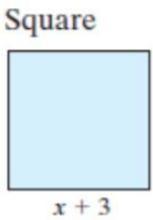


Write an expression for the area.

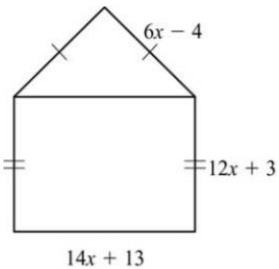
3.)



4.)



5) Find the **perimeter**, in units, of the pentagon below.



6) In a rectangle, one side is 3 units smaller than the other. Draw a picture and label what you know. Find the **area** and the **perimeter** of the rectangle.

7) The length of a rectangle is 1.5 times longer than its width. Draw a picture! Write an expression for the
   a) **perimeter** b) **area**

8) The base of a triangle is 3x and the height is x + 5. Draw a picture! Write an expression for the **area** of the triangle. Remember, area is ½*b*h.

9) The **side** lengths of a **square** are 4x - 1. Draw a picture! What is the **perimeter** expression? What is the **area** expression?

10) The length of a **rectangular** garden is **4 less** than **twice** its **width**. Draw a picture! Find the **area** and the **perimeter** expressions.