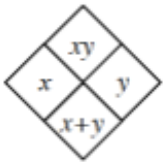
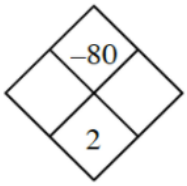
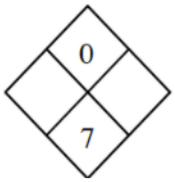
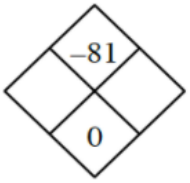
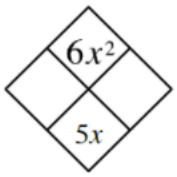
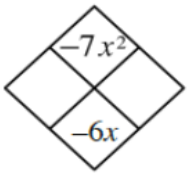
Name _____

Period _____ Date _____

Homework 4.1.2, 4.1.3

1) Complete the following Diamond Problems

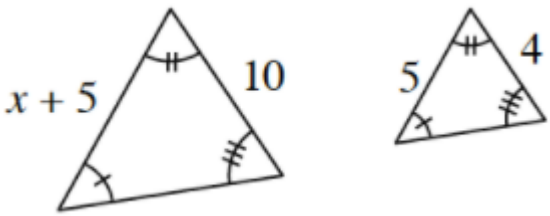
Pattern:	a)	b)	c)	d)	e)
					

2) Factor the expressions below using a Diamond Problem and an Area Model.

Write as: **Sum = Product**

a) $x^2 - 4x - 12$	b) $4x^2 + 4x + 1$
c) $2x^2 - 9x - 5$	d) $3x^2 + 10x - 8$

3) Examine the triangles at right. Solve for x. (Hint: is there a special relationship between the two triangles?)



4) Salvador has a hotdog stand 58 meters from the base of the Space Needle in Seattle. To measure its height, Salvador stands at the hotdog stand, gets out his clinometer, and measures the angle to the top of the Space Needle to be 80∘. Salvador's eyes are 1.5 meters above the ground.

a. Assuming that the ground is level between the hotdog stand and the Space Needle, draw a detailed picture of this situation. Label it with the given information.

b. How tall is the Space Needle?

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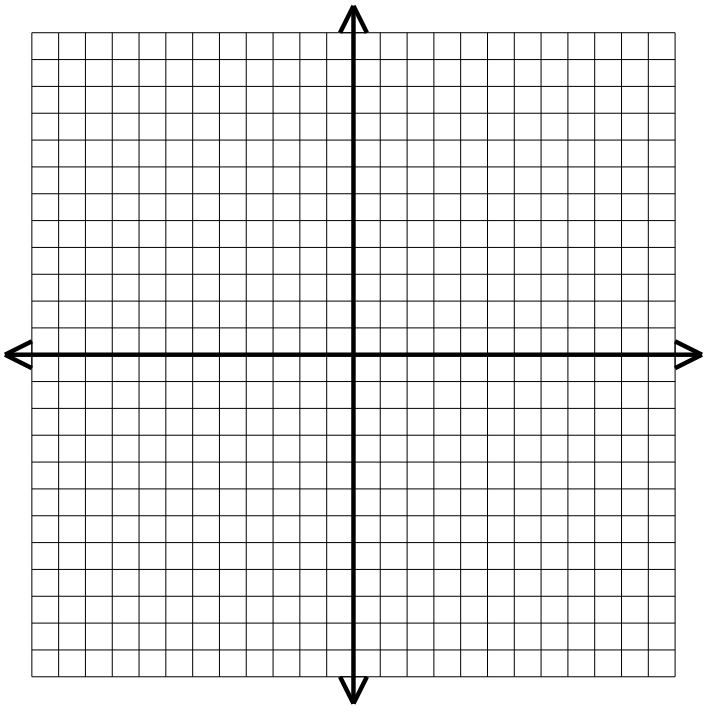
5) Complete the table below for the function: $y = x^2$

x	-4	-3	-2	-1	$-\frac{1}{2}$	0	$\frac{1}{2}$	1	2	3	4
y											

a) Sketch the graph of the function



b) This graph is an example of a **parabola**.

The **vertex** is the maximum or minimum point of a parabola.

Where is the vertex of the parabola you graphed in part (a)?