Day 5 – Solving by Completing the Square
Practice Assignment

Name: _____

1. $x^2 - 16x - 8 = 0$

x = _____

2. $x^2 - 8x + 6 = 0$

x = _____

3. $x^2 - 12x + 10 = 0$

x = _____

4. $x^2 + 20x - 15 = 0$

x = _____

5. $x^2 + 14x + 5 = -5$

x = _____

6. $x^2 + 6x - 18 = -9$

x = _____

Defend:
Matt is trying to solve the following problem by completing the square:

$$x^2 - 18x + 6 = 0$$

He believes he has got the answer and wants to compare it with his classmate, Marcus. He says,"Hey Marcus, I got $x = 9 + 5\sqrt{3}$ and $9 - 5\sqrt{3}$, what did you get?"

Marcus replied, "hmm that's weird I got $x = 9 + \sqrt{75}$ and $9 - \sqrt{75}$."

Matt then says "well we both got the 9 part so we have similar thinking, lets ask Tiffany!"

Tiffany looks at their work and says " I got the same thing as Matt I just combined like terms and got $x = 14\sqrt{3}$ and $4\sqrt{3}$."

More confused than ever they call over Mrs. Dombrowski. She assures them that one of them has the correct answer…

Who is correct? Explain.

Error Analysis:
Describe and correct the error Emma made when attempting to solve by completing the square.

<u>Problem: $x^2 + 20x - 8 = 0$</u>

Emma's Process:
$x^2 + 20x - 8 = 0$
$x^2 + 20x +$ _____ $= 8 +$ _____
$x^2 + 20x + 10 = 8 + 10$
$(x + 10)^2 = 18$
$x + 10 = \pm\sqrt{18}$
$x = -10 \pm 3\sqrt{2}$

a. What was Emma's mistake when solving by completing the square?

b. Solve the problem correctly below.

Answer: $x = -10 \pm 3\sqrt{2}$