Day 8 – Solving by Completing the Square Practice Assignment **Name:** _____

Steps for Solving Quadratics by Completing the Square (works only when a = 1):
1. Move constant to the other side by adding or subtracting
2. Add $\left(\frac{b}{2}\right)^2$ to both sides
3. Factor the left side into a binomial squared.
4. Take the square roots of both sides.
5. Solve for x.

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.

Problem: $x^2 + 20x - 8 = 0$

Emma's Process:

$x^2 + 20x - 8 = 0$

$x^2 + 20x + \_\_\_\_\_ = 8 + \_\_\_\_\_$

$x^2 + 20x + 10 = 8 + 10$

$x^2 + 20x + 10 = 18$

There are no numbers that multiply to 10 and Add to 20. Therefore, it is not factorable.

Correct Process: