Section 01-06 Sample Quiz - Solving Quadratics by Completing the Square

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. Find the values of the variable that would make the statement true using the square root method.
   \( w^2 + 16 = 0 \)
   a. \( w = \pm 4i \)
   b. \( w = \pm 4 \)
   c. \( w = \pm 8i \)
   d. \( w = \pm 8 \)

2. When using the Completing the Square method, what would you add to both sides of the equation to complete the square?
   \( x^2 - 6x \) ____ = 2 ____
   a. 6
   b. 9
   c. 3
   d. 36

3. Which suggested step below would be one of the next correct steps in solving the quadratic equation by Completing the Square?

   \[
   3x^2 - 12x - 3 = 0
   \]
   \[
   \lemenator{3x^2 - 12x}{3} = \frac{8}{3}
   \]
   \[
   x^2 - 4x = \frac{8}{3}
   \]
   a. Add 4 to both sides of the equation
   b. Add 16 to both sides of the equation
   c. Subtract \( \frac{4}{3} \) from both sides of the equation
   d. Take the ± square root of both sides of the equation.
4. Solve the following equation by **COMPLETING THE SQUARE**:

\[x^2 - 5x + 1 = 0\]

- a. \(x = \frac{5 \pm \sqrt{6}}{2}\)
- b. \(x = \frac{5 \pm \sqrt{21}}{2}\)
- c. \(x = \frac{5 \pm 26}{4}\)
- d. \(x = \frac{5 \pm \sqrt{21}}{2}\)

5. A student used the **COMPLETING THE SQUARE** to find a solution to a quadratic equation and determined that one of the following solutions could be written as:

\[x = \frac{4 + \sqrt{6}}{2}\]

Which of the below is the most correct approximation of her answer?

- a. \(x \approx 3.22\)
- b. \(x \approx 4.45\)
- c. \(x \approx 5.22\)
- d. \(x \approx 5.73\)

6. Solve the following equation by **COMPLETING THE SQUARE**:

\[x^2 + 4x + 13 = 0\]

- a. \(x = -2 \pm 3i\)
- b. \(x = -3 \pm 2i\)
- c. \(x = -2 \pm i\sqrt{17}\)
- d. \(x = -3 \pm i\sqrt{17}\)

7. Solve the following equation by **COMPLETING THE SQUARE**:

\[4x^2 - 16x + 17 = 0\]

- a. \(x = -2 \pm \frac{i}{2}\)
- b. \(x = 2 \pm \frac{i}{2}\)
- c. \(x = -\frac{1}{2} \pm 2i\)
- d. \(x = \frac{1}{2} \pm 2i\)