

Practice – Solving Quadratics by Completing the Square

Name _____

Date _____

1. Describe and correct the error in solving $x^2 + 8x = 10$.

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

$$x^2 + 8x + 16 = 10$$

$$(x + 4)^2 = 10$$

$$x + 4 = \pm\sqrt{10}$$

$$x = -4 \pm \sqrt{10}$$

Solve the equation by completing the square. Round your solutions to the nearest hundredth, if necessary.

2. $x^2 + 14x = 15$

3. $x^2 + 6x = 16$

4. $x^2 - 4x = -2$

5. $m^2 + 16m = -59$

6. $r^2 - 4r - 165 = 0$

7. $4w^2 + 12w = 44$

8. A painting has an area of 240 in^2 . If the length of the painting is x inches and the width is $(2x + 8)$ inches, solve for the dimensions of the painting to the nearest tenth.

9. Which method is more effective to find the solutions of $3x^2 + x = 25$, completing the square or factoring? Explain.

10. What is the solution set for the quadratic equation $x^2 + 6x = -5$?

- A. $\{1\}$
- B. $\{-1, -5\}$
- C. $\{1, 5\}$
- D. $\{-5\}$

11. Larry starts to solve $5x^2 + 40x + 15 = 0$ for x by completing the square. What was his error?

$$5x^2 + 40x + 15 = 0$$

$$5(x^2 + 8x) = -15$$

$$5(x^2 + 8x + 16) = -15 + 16$$

What is the correct solution?

12. What are the possible solutions to $x^2 + 4x + 1 = 0$ found by completing the square?

A. $x = 1$ or $x = 5$

B. $x = -1$ or $x = -5$

C. $x = 2 - \sqrt{3}$ or $x = 2 + \sqrt{3}$

D. $x = -2 - \sqrt{3}$ or $x = -2 + \sqrt{3}$