

# Algebra: Special Cases of Quadratic Equations

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## DIRECTIONS

Apply the correct special-case technique: perfect square, difference of squares, or square root

s.

1 Solve (difference of squares):

$$x^2 - 9 = 0$$

Answer: \_\_\_\_\_

2 Solve by taking square roots:

$$2x^2 = 8$$

Answer: \_\_\_\_\_

3 Solve (difference of squares):

$$x^2 - 49 = 0$$

Answer: \_\_\_\_\_

4 Solve (perfect square trinomial):

$$(x + 1)^2 = 0$$

Answer: \_\_\_\_\_

5 Solve (difference of squares):

$$x^2 - 16 = 0$$

Answer: \_\_\_\_\_

6 Solve by taking square roots:

$$1x^2 = 16$$

Answer: \_\_\_\_\_

7 Solve by taking square roots:

$$2x^2 = 50$$

Answer: \_\_\_\_\_

8 Solve (perfect square trinomial):

$$(x + 2)^2 = 0$$

Answer: \_\_\_\_\_

9 Solve (difference of squares):

$$x^2 - 25 = 0$$

Answer: \_\_\_\_\_

10 Solve (perfect square trinomial):

$$(x + 4)^2 = 0$$

Answer: \_\_\_\_\_

# Answer Key & Solutions

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**TEACHER NOTES** Difference of squares:  $a^2 - b^2 = (a+b)(a-b)$ . Perfect square:  $(a \pm b)^2 = a^2 \pm 2ab + b^2$ .

1 Solve (difference of squares):

$$= \quad x = \pm 3$$

$$x^2 - 9 = 0$$

2 Solve by taking square roots:

$$= \quad x = \pm 2$$

$$2x^2 = 8$$

3 Solve (difference of squares):

$$= \quad x = \pm 7$$

$$x^2 - 49 = 0$$

4 Solve (perfect square trinomial):

$$= \quad x = -1 \text{ (double root)}$$

$$(x + 1)^2 = 0$$

5 Solve (difference of squares):

$$= \quad x = \pm 4$$

$$x^2 - 16 = 0$$

6 Solve by taking square roots:

$$= \quad x = \pm 4$$

$$1x^2 = 16$$

7 Solve by taking square roots:

$$= \quad x = \pm 5$$

$$2x^2 = 50$$

8 Solve (perfect square trinomial):

$$= \quad x = -2 \text{ (double root)}$$

$$(x + 2)^2 = 0$$

9 Solve (difference of squares):

$$= \quad x = \pm 5$$

$$x^2 - 25 = 0$$

10 Solve (perfect square trinomial):

$$= \quad x = -4 \text{ (double root)}$$

$$(x + 4)^2 = 0$$