Algebra: Quadratic Formula & Completing the Squa

Practice Worksheet • numberbender.com

Name: _____ Date: _____ Score: / 10

DIRECTIONS *Solve by completing the square or using the Quadratic Formula. Simplify all answers.*

1 Complete the square — write in vertex form:

$$x^2 + 2x + 1$$

Answer: _____

2 Complete the square — write in vertex form:

$$x^2 + 2x - 6$$

Answer: _____

3 Complete the square — write in vertex form:

$$x^2 + 2x - 7$$

Answer: _____

4 Complete the square — write in vertex form:

$$x^2 + 4x - 2$$

Answer: _____

5 Solve using the Quadratic Formula:

$$1x^2 + 4x + 5 = 0$$

Answer: _____

6 Solve using the Quadratic Formula:

$$1x^2 - 4x + 5 = 0$$

Answer: _____

7 Solve using the Quadratic Formula:

$$1x^2 + 5x + 2 = 0$$

Answer: _____

8 Solve using the Quadratic Formula:

$$2x^2 - 4x - 2 = 0$$

Answer: _____

9 Solve using the Quadratic Formula:

$$1x^2 - 5x - 2 = 0$$

Answer: _____

10 Solve using the Quadratic Formula:

$$2x^2 - 4x - 2 = 0$$

Answer: _____

Answer Key & Solutions

Algebra: Quadratic Formula & Completing the Square • Numberbender

N

TEACHER NOTES *Completing the square: half of b, then square it. QF: x = (–b ± √(b²–4ac)) / 2a.*

1 Complete the square — write in vertex form:

$x^2 + 2x + 1$

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

2 Complete the square — write in vertex form:

$x^2 + 2x - 6$

= $(x+1)^2 - 7$

3 Complete the square — write in vertex form:

$x^2 + 2x - 7$

= $(x+1)^2 - 8$

4 Complete the square — write in vertex form:

$x^2 + 4x - 2$

= $(x+2)^2 - 6$

5 Solve using the Quadratic Formula:

$1x^2 + 4x + 5 = 0$

= No real solutions

6 Solve using the Quadratic Formula:

$1x^2 - 4x + 5 = 0$

= No real solutions

7 Solve using the Quadratic Formula:

$1x^2 + 5x + 2 = 0$

= $x = -\frac{5}{2} - \frac{\sqrt{17}}{2},\ x = -\frac{5}{2} + \frac{\sqrt{17}}{2}$

8 Solve using the Quadratic Formula:

$2x^2 - 4x - 2 = 0$

= $x = 1 - \sqrt{2},\ x = 1 + \sqrt{2}$

9 Solve using the Quadratic Formula:

$1x^2 - 5x - 2 = 0$

= $x = \frac{5}{2} - \frac{\sqrt{33}}{2},\ x = \frac{5}{2} + \frac{\sqrt{33}}{2}$

10 Solve using the Quadratic Formula:

$2x^2 - 4x - 2 = 0$

= $x = 1 - \sqrt{2},\ x = 1 + \sqrt{2}$