

5.4 The Quadratic Formula

Name _____

Solve each equation by quadratic formula.

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

2. $x^2 - 4x + 3 = 0$

3. $x^2 - 3x - 3 = 0$

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

Answers: 1. $\{1, -5\}$; 3. $\left\{\frac{3 \pm \sqrt{21}}{2}\right\}$

Solve each equation by the quadratic formula.

5. $2x^2 + 3x = 2$

6. $3x^2 + 14x = 5$

7. $2x^2 = 2x + 2$

8. $2x^2 + 4x = -1$

Answers: 5. $\{-2, \frac{1}{2}\}$; 7. $\{\frac{1 \pm \sqrt{5}}{2}\}$

Solve each equation by the quadratic formula.

9. $2x^2 + x + 2 = 0$

10. $3x^2 - 2x + 1 = 0$

11. $x^2 + 2x + 2 = 0$

12. $4x^2 + 2x + 1 = 0$

Answers: 9. $\left\{ \frac{-1}{4} \pm \frac{\sqrt{15}}{4}i \right\}$; 11. $\{-1 \pm i\}$

Determine the x -intercepts and the vertex. You do not have to graph the equations.

13. $y = x^2 - 2x$

x -intercepts:

vertex:

14. $y = x^2 - 6x$

x -intercepts:

vertex:

15. $y = x^2 - 2x - 15$

x -intercepts:

vertex:

16. $y = x^2 + 6x + 8$

x -intercepts:

vertex:

Answer: **13.** (0, 0), (2, 0), vertex: (1, -1); **15.** (-3, 0), (5, 0), vertex: (1, -16)

Determine the x -intercepts and the vertex. Write your answer to the nearest tenth. You do not have to graph the equations.

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

x -intercepts:

vertex:

18. $y = x^2 - 2x - 2$

x -intercepts:

vertex:

Answer: 17. $(-0.4, 0), (4.4, 0)$, vertex: $(2, -6)$