

2.8 Practice Set

1. What is the Square Root Property?
2. Describe the process for completing the square. When and why is this process useful for solving equations?
3. What conditions must be met prior to completing the square on a quadratic?
4. What value completes the square on the quadratic $x^2 + x$?

Solve each of the following equations for the indicated variable.

Write answers as complex numbers $\mathbf{a + bi}$ when they are complex. Simplify your answers and rationalize denominators in your answers when necessary.

5. $x^2 = 16$
6. $-4y^2 = 20$
7. $z^2 - 9 = 0$
8. $(x - 5)^2 = 4$
9. $(2z - 1)^2 = 12$
10. $(x + 7)^2 = -18$
11. $(y - 2)^2 = 144$
12. $x^2 + 8x + 5 = 0$
13. $y^2 + 16x = -50$
14. $z^2 - 3z + 6 = 0$
15. $a^2 + 14a = 5$
16. $x^2 + 20x - 4 = 0$

17. $m^2 + m = -1$
18. $3t^2 - 6t - 12 = 0$
19. $4x^2 - 20x + 16 = 0$
20. $2x^2 + 3x = 10$
21. $5x^2 - 25x + 1 = 0$
22. $2m^2 + 16m + 2 = -36$
23. $15y^2 + 30y + 9 = 0$
24. $2r^2 - 8r - 18 = 2$
25. $3x^2 - 5x - 1 = 0$

Distributed Practice Problems

Perform the indicated operation and/or simplify each of the following.

Assume that all variables represent positive real numbers and rationalize all denominators.

26. $\sqrt[3]{4x^5y} \cdot \sqrt[3]{6xy^7}$
27. $\frac{\sqrt{48x^9y^5}}{\sqrt{12xy^2}}$
28. $3\sqrt[3]{16m^5n^4} - 2mn\sqrt[3]{2m^2n} + mn\sqrt{2m^2n}$
29. $\frac{7}{\sqrt[3]{4x^2}}$
30. $\frac{5+2i}{5-4i}$