

Complete each problem.

1. Which of the following quadratic equations can be solved using the Square Root Property? Select all that apply.

$x^2 + 3x = -26$

$(x + 5)^2 = 121$

$2x^2 = 14$

$x^2 + 12x - 13 = 0$

$x^2 - 4 = 12$

2. Which of the quadratic equations have no real solution? Select all that apply.

$-2x^2 = -26$

$(x + 5)^2 = -121$

$x^2 + 5 = 1$

$(x - 3)^2 - 7 = 0$

$x^2 - 4 = 12$

3. Write each solution description below the appropriate equation.

two real rational roots	no real roots	one real rational root	two real irrational roots
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$4x^2 = 0$ one real rational root	$x^2 = 37$ two real irrational roots
$x^2 = 9$ two real rational roots	$\frac{x^2}{-2} = 5$ no real roots

Solve each quadratic equation.

4. $x^2 = 343$

$x = \pm 7\sqrt{7}$

5. $x^2 - 2 = 70$

$x = \pm 6\sqrt{2}$

Solve each quadratic equation.

6. $6x^2 = 96$

$$x = \pm 4$$

7. $25x^2 - 2 = 2$

$$x = \pm \frac{2}{5}$$

8. Explain the error in the Kaleem's work below.

	Kaleem
	$(x + 1)^2 = 17$
	$(x + 1)^2 - 1 = 17 - 1$
	$x^2 = 16$
	$x = \pm 4$

Sample answer:

Kaleem can't subtract 1 from each side first because it's part of an expression being squared. Instead, the first step would be to take the square root of each side.

Solve each quadratic equation.

9. $(x + 3)^2 = 54$

$$x = -3 \pm 3\sqrt{6}$$

10. $-2(x - 5)^2 = -200$

$$x = 15 \text{ or } x = -5$$

11. $3(x - 10)^2 + 7 = 43$

$$x = 10 \pm 2\sqrt{3}$$

12. $(x + 9)^2 + 8 = -3$

no real solutions

Solve each quadratic equation.

13. $\frac{1}{3}(x-1)^2 = 5$

$$x = 1 \pm \sqrt{15}$$

14. $4\left(x + \frac{1}{2}\right)^2 = 7$

$$x = \frac{-1 \pm \sqrt{7}}{2}$$

15. Solve for b .

$$a = b^2 + 4$$

$$b = \pm \sqrt{a - 4}$$

16. The volume V of a cylinder can be found using the formula $V = \pi r^2 h$, where r is the radius and h is the height.

Solve the formula $V = \pi r^2 h$ for r .

$$r = \pm \sqrt{\frac{V}{\pi h}}$$

Find the radius of a cylinder with a volume of 10.62 in^3 and a height of 2 inches. Express your answer as a decimal rounded to the nearest tenth.

$$r = 1.3$$