

Quadratic Equations with Rational & Irrational Roots

Date _____ Period _____

Solve each equation with the quadratic formula.

1) $6x^2 + 10x - 84 = 0$

2) $n^2 + 2n - 48 = 0$

3) $4m^2 = 11m + 20$

4) $-r^2 - 12r - 20 = -r + 6 - 2r^2$

5) $2b^2 - 12b - 77 = -5b - 5$

6) $2m^2 - 2m - 122 = 2 + 5m - 4m^2$

Simplify.

7) $\sqrt{448}$

8) $\sqrt{18}$

9) $\sqrt{32}$

10) $\sqrt{175}$

11) $\sqrt{96}$

12) $\sqrt{288}$

Solve each equation with the quadratic formula.

13) $5b^2 + 9b - 44 = 0$

14) $v^2 + 6v + 7 = 0$

15) $8n^2 + 9n + 2 = 0$

16) $3a^2 + 9a - 30 = 0$

17) $4x^2 - 3x - 45 = 0$

18) $3k^2 + 6k - 16 = 0$

19) $8b^2 + 8b + 3 = 6$

20) $4x^2 + 11x = -3$

21) $2x^2 + 2x - 8 = 10$

22) $n^2 + 10n + 13 = -9$

Answers to Quadratic Equations with Rational & Irrational Roots (ID: 1)

$$1) \left\{ 3, -\frac{14}{3} \right\}$$

$$3) \left\{ 4, -\frac{5}{4} \right\}$$

$$5) \left\{ 8, -\frac{9}{2} \right\}$$

$$7) 8\sqrt{7}$$

$$9) 4\sqrt{2}$$

$$11) 4\sqrt{6}$$

$$13) \left\{ \frac{11}{5}, -4 \right\}$$

$$15) \left\{ \frac{-9 + \sqrt{17}}{16}, \frac{-9 - \sqrt{17}}{16} \right\}$$

$$17) \left\{ \frac{15}{4}, -3 \right\}$$

$$19) \left\{ \frac{-2 + \sqrt{10}}{4}, \frac{-2 - \sqrt{10}}{4} \right\}$$

$$21) \left\{ \frac{-1 + \sqrt{37}}{2}, \frac{-1 - \sqrt{37}}{2} \right\}$$