

Quadratic Equations with Rational & Irrational Roots Date _____ Period _____

CLASS EXAMPLES: Solve each equation with the quadratic formula.

1) $4n^2 + 12n - 112 = 0$

2) $3n^2 - 57 = 3 + 11n$

Solve each equation with the quadratic formula.

3) $6x^2 + 10x - 84 = 0$

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

5) $4m^2 = 11m + 20$

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

7) $2b^2 - 12b - 77 = -5b - 5$

8) $2m^2 - 2m - 122 = 2 + 5m - 4m^2$

CLASS EXAMPLES: Solve each equation with the quadratic formula.

9) $4m^2 + 7m + 6 = 7$

10) $4n^2 - 6n - 19 = -6$

$$11) 5m^2 - 18m - 20 = -8m$$

$$12) 5x^2 - 11 - 9x = -9x - 4$$

Solve each equation with the quadratic formula.

$$13) 6m^2 + 5m - 5 = 0$$

$$14) 10k^2 - 8k - 19 = 0$$

$$15) 2x^2 + 6x - 19 = 0$$

$$16) 10v^2 - 10v - 12 = 0$$

$$17) 7x^2 + 10x - 16 = 0$$

$$18) 6x^2 + 6x - 11 = 0$$

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

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

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

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

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

1) $\{4, -7\}$

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

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

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

9) $\left\{\frac{-7 + \sqrt{65}}{8}, \frac{-7 - \sqrt{65}}{8}\right\}$

11) $\{1 + \sqrt{5}, 1 - \sqrt{5}\}$

13) $\left\{\frac{-5 + \sqrt{145}}{12}, \frac{-5 - \sqrt{145}}{12}\right\}$

15) $\left\{\frac{-3 + \sqrt{47}}{2}, \frac{-3 - \sqrt{47}}{2}\right\}$

17) $\left\{\frac{-5 + \sqrt{137}}{7}, \frac{-5 - \sqrt{137}}{7}\right\}$

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

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