

Solving Quadratic Equations By Factoring

Solve each equation by factoring.

1) $(3n - 2)(4n + 1) = 0$

2) $m(m - 3) = 0$

3) $(5n - 1)(n + 1) = 0$

4) $(n + 2)(2n + 5) = 0$

5) $3k^2 + 72 = 33k$

6) $n^2 = -18 - 9n$

7) $7v^2 - 42 = -35v$

8) $k^2 = -4k - 4$

9) $-2v^2 - v + 12 = -3v^2 + 6v$

10) $-4n^2 + 6n - 16 = -5n^2$

$$11) 8r^2 + 3r + 2 = 7r^2$$

$$12) b^2 + b = 2$$

$$13) 10n^2 - 35 = 65n$$

$$14) 3x^2 - 8x = 16$$

$$15) 16n^2 - 114n = -14$$

$$16) 28n^2 = -96 - 184n$$

$$17) 7a^2 + 32 = 7 - 40a$$

$$18) 42x^2 - 69x + 20 = 7x^2 - 8$$

Critical thinking questions. True/False.

19) If a quadratic equation can be factored and each factor contains only real numbers then there cannot be an imaginary solution.

20) If a quadratic equation cannot be factored then it will have at least one imaginary solution.

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1) $(3n - 2)(4n + 1) = 0$

$$\left\{ \frac{2}{3}, -\frac{1}{4} \right\}$$

2) $m(m - 3) = 0$

$$\{3, 0\}$$

3) $(5n - 1)(n + 1) = 0$

$$\left\{ \frac{1}{5}, -1 \right\}$$

4) $(n + 2)(2n + 5) = 0$

$$\left\{ -2, -\frac{5}{2} \right\}$$

5) $3k^2 + 72 = 33k$

$$\{3, 8\}$$

6) $n^2 = -18 - 9n$

$$\{-6, -3\}$$

7) $7v^2 - 42 = -35v$

$$\{-6, 1\}$$

8) $k^2 = -4k - 4$

$$\{-2\}$$

9) $-2v^2 - v + 12 = -3v^2 + 6v$

$$\{3, 4\}$$

10) $-4n^2 + 6n - 16 = -5n^2$

$$\{2, -8\}$$

11) $8r^2 + 3r + 2 = 7r^2$

$\{-2, -1\}$

12) $b^2 + b = 2$

$\{-2, 1\}$

13) $10n^2 - 35 = 65n$

$\{-\frac{1}{2}, 7\}$

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$\{-\frac{4}{3}, 4\}$

15) $16n^2 - 114n = -14$

$\{\frac{1}{8}, 7\}$

16) $28n^2 = -96 - 184n$

$\{-\frac{4}{7}, -6\}$

17) $7a^2 + 32 = 7 - 40a$

$\{-\frac{5}{7}, -5\}$

18) $42x^2 - 69x + 20 = 7x^2 - 8$

$\{\frac{7}{5}, \frac{4}{7}\}$

Critical thinking questions. True/False.

19) If a quadratic equation can be factored and each factor contains only real numbers then there cannot be an imaginary solution.

True

20) If a quadratic equation cannot be factored then it will have at least one imaginary solution.

False (Example, $x^2 = 10$)