

Algebra: Factoring Quadratics ($a > 1$)

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DIRECTIONS

Factor the quadratic with leading coefficient $a > 1$ completely, then solve for x .

1 Factor completely and solve:

$$4x^2 - 4x - 24 = 0$$

Answer: _____

2 Factor completely and solve:

$$4x^2 + 12x - 16 = 0$$

Answer: _____

3 Factor completely and solve:

$$4x^2 + 24x + 32 = 0$$

Answer: _____

4 Factor completely and solve:

$$4x^2 + 8x - 12 = 0$$

Answer: _____

5 Factor completely and solve:

$$4x^2 - 24x + 32 = 0$$

Answer: _____

6 Factor completely and solve:

$$4x^2 - 4x - 48 = 0$$

Answer: _____

7 Factor completely and solve:

$$4x^2 - 16 = 0$$

Answer: _____

8 Factor completely and solve:

$$5x^2 - 40x + 80 = 0$$

Answer: _____

9 Factor completely and solve:

$$2x^2 + 2x - 4 = 0$$

Answer: _____

10 Factor completely and solve:

$$4x^2 + 28x + 48 = 0$$

Answer: _____

Answer Key & Solutions

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TEACHER NOTES Use the AC method or trial-and-error. Always factor out GCF before applying other techniques.

1 Factor completely and solve:

$$= 4(x - -2)(x - 3), \quad x = -2, x = 3$$
$$4x^2 - 4x - 24 = 0$$

2 Factor completely and solve:

$$= 4(x - 1)(x - -4), \quad x = -4, x = 1$$
$$4x^2 + 12x - 16 = 0$$

3 Factor completely and solve:

$$= 4(x - -4)(x - -2), \quad x = -4, x = -2$$
$$4x^2 + 24x + 32 = 0$$

4 Factor completely and solve:

$$= 4(x - -3)(x - 1), \quad x = -3, x = 1$$
$$4x^2 + 8x - 12 = 0$$

5 Factor completely and solve:

$$= 4(x - 4)(x - 2), \quad x = 2, x = 4$$
$$4x^2 - 24x + 32 = 0$$

6 Factor completely and solve:

$$= 4(x - 4)(x - -3), \quad x = -3, x = 4$$
$$4x^2 - 4x - 48 = 0$$

7 Factor completely and solve:

$$= 4(x - -2)(x - 2), \quad x = -2, x = 2$$
$$4x^2 - 16 = 0$$

8 Factor completely and solve:

$$= 5(x - 4)^2, \quad x = 4$$
$$5x^2 - 40x + 80 = 0$$

9 Factor completely and solve:

$$= 2(x - -2)(x - 1), \quad x = -2, x = 1$$
$$2x^2 + 2x - 4 = 0$$

10 Factor completely and solve:

$$= 4(x - -4)(x - -3), \quad x = -4, x = -3$$
$$4x^2 + 28x + 48 = 0$$