

Section 3.4 - Solving Quadratic Equations

Learning Goal: By the end of today, we will be able to recognize and solve different types of Quadratic equations.

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Solve the following linear equations:

(a) $5x + 15 = 0$

(b) $7x - 4 = -3x + 26$

(c) $5(a + 1) = 0$

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BIG IDEA

When two or more variables are multiplied together for a product of ZERO, at least one of the unknowns must be a zero.

$$a \cdot b = 0$$

Case 1

$a = 0$ and "b" is a number

Case 2

$b = 0$ and "a" is a number

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Solve the following:

$$(x + 1)(x - 5) = 0$$

This is asking, when does the graph $f(x)$ have y values equal to zero.

$$f(x) = (x+1)(x-5)$$

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Solving for a Product of ZERO, in Factored form

Solve for the given unknowns:

(a) $(x)(x+1) = 0$

(b) $(x - 3)(x + 7) = 0$

(c) $(2x - 1)(3x + 5) = 0$

(d) $(x + 5)(x - 7)(x - 12) = 0$

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Solving for a Product of ZERO, NOT in factored form

Solve for the given unknowns:

(a) $x^2 - 8x = 0$

(b) $x^2 + 7x + 12 = 0$

(c) $2x^2 - 13x + 15 = 0$

(d) $x^2 - 9 = 0$

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Solving for a Quadratic - Mixed Types

Solve for the given unknowns:

(a) $x^2 = 12x$

(b) $x^2 + 8x = -12$

(c) $x^2 + 2 = -3x$

(d) $3x^2 = 27$

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Success Criteria

- collect all terms to one side, leave a Zero on the other side
- put in factored form to take advantage of the following concept
- $(a)(b) = 0$, "a" or "b" must be zero, find the value that will make each bracket equal Zero

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Consolidation Questions:

Page 161-63 #1ac, 2ab, 4ace,
5ace, 8, 9

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