Algebra RH

Unit 14: Solving Quadratic Equations Practice

Do Now:

Are these polynomials perfect square trinomials?

A. $x^2 - 6x + 12$

No, $(-6/2)^2$ does not equal 12.

B. $x^2 - \frac{8}{7}x + \frac{16}{49}$

Yes, $-8/7 \div 2 = -4/7$ and $(-4/7)^2 = 16/49$.

1. What are the solutions of $(x - 11)(x + 15) = 0$?

$x - 11 = 0$ | $x + 15 = 0$

$x = 11$ | $x = -15$

{ 11, -15 }

2. Find the solutions of $x^2 - 13x = 0$.

$x(x - 13) = 0$

$x = 0$ | $x - 13 = 0$

$x = 13$

{ 0, 13 }

3. Find the solutions of $\frac{x-4}{x-5} = \frac{x}{3}$.

$x^2 - 5x = 3x - 12$

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

$(x - 6)(x - 2) = 0$

$x - 6 = 0$ | $x - 2 = 0$

$x = 6$ | $x = 2$

{ 6, 2 }

4. Solve for x: $9x^2 = 27$.

$x^2 = 3$

$x = \pm \sqrt{3}$

5. Solve for x: $36x^2 = 841$.

$x^2 = \frac{841}{36}$

$x = \pm \frac{29}{6}$

6. Solve for x: $7x^2 = 42x - 35$.

$7x^2 - 42x + 35 = 0$

$7(x^2 - 6x + 5) = 0$

$7(x - 5)(x - 1) = 0$

$x - 5 = 0$ | $x - 1 = 0$

$x = 5$ | $x = 1$

{ 5, 1 }

7. Solve by factoring: $x^2 + x = 12$.

$(x + 4)(x - 3) = 0$

$x + 4 = 0$ | $x - 3 = 0$

$x = -4$ | $x = 3$

{ -4, 3 }

8. Solve by completing the square:

$x^2 - 8x + 13 = 0$

$x^2 - 8x + \_\_\_\_ = -13 + \_\_\_\_$

$x^2 - 8x + 16 = -13 + 16$

$(x - 4)^2 = 3$

$x - 4 = \pm\sqrt{3}$

$x = 4 \pm \sqrt{3}$

Quadratic formula

9. Find the values of a, b, and c for $4x^2 + 7 = 11x$.

$4x^2 - 11x + 7 = 0$

a = 4 **b = -11** **c = 7**

10. Use the quadratic formula to solve:

$2x^2 - 8x = 3$

$2x^2 - 8x - 3 = 0$

a = 2
b = -8
c = -3

$$x = \frac{-(-8) \pm \sqrt{(-8)^2 - 4(2)(-3)}}{2(2)}$$

$$x = \frac{8 \pm \sqrt{88}}{4}$$

$$x = \frac{8 \pm 2\sqrt{22}}{4}$$

$$x = \frac{4 \pm \sqrt{22}}{2}$$