Solving Quadratic Equations using The Quadratic Formula WS

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Solve each equation by using the Quadratic Formula.

1. $x^2 + 10x + 9 = 0$

$100 - 36$

$x = \frac{-10 \pm \sqrt{64}}{2} = \frac{-10 \pm 8}{2}$

$x = -1, -9$

2. $2x^2 = 12 - 4x$

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

$x^2 + 2x - 6 = 0$

$4 - (-24)$

$x = \frac{-2 \pm \sqrt{28}}{2} = \frac{-2 \pm 2\sqrt{7}}{2} = -1 \pm \sqrt{7}$

3. $3 = x^2 + 5x$

$x^2 + 5x - 3 = 0$

$25 - (-12)$

$x = \frac{-5 \pm \sqrt{37}}{2}$

4. $2x^2 + 4x - 6 = 0$

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

$4 - (-12)$

$x = \frac{-2 \pm \sqrt{16}}{2} = \frac{-2 \pm 4}{2}$

$x = 1, -3$

5. $2x^2 + 1 = -3x$

$9 - 4(2)(1)$

$9 - 8$

$2x^2 + 3x + 1 = 0$

$x = \frac{-3 \pm \sqrt{1}}{4} = \frac{-3 \pm 1}{4}$

$x = \frac{-1}{2}, -1$

6. $3x^2 - 3x + \frac{3}{4} = 0$

$1 - 1 = 0$

$x^2 - x + \frac{1}{4} = 0$

$x = \frac{1 \pm \sqrt{0}}{2}$

$x = \frac{1}{2}$

Find the zeros of each function by using the Quadratic Formula.

dec. →

3. $f(x) = x^2 + 2x + 42 = 0$

$4 - 168 = -164$

$-4 \cdot 41$

$x = \frac{-2 \pm \sqrt{-164}}{2} = \frac{-2 \pm 2i\sqrt{41}}{2}$

$x = -1 \pm i\sqrt{41}$

$g(x) = 2x^2 - 6x - 1 = 0$

$36 - (-8)$

44

$x = \frac{6 \pm \sqrt{44}}{4} = \frac{6 \pm 2\sqrt{11}}{4}$

$x = \frac{3 \pm \sqrt{11}}{2}$

3. $h(x) = x^2 - x + 12$

$1 - 48$

$x = \frac{1 \pm \sqrt{-47}}{2}$

$x = \frac{1 \pm i\sqrt{47}}{2}$

4. $f(x) = -2x^2 - 5x + 20 = 0$

$25 - (-160)$

185

$2x^2 + 5x - 20 = 0$

$x = \frac{-5 \pm \sqrt{185}}{4}$