

DAY 7 The Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Some problems cannot be solved by factoring. The quadratic formula can be used in this situation to find the quadratic roots.

Example: Solve $x^2 - 6x + 4 = 0$ by the quadratic formula. $x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(4)}}{2(1)}$

$$x = \frac{6 \pm \sqrt{20}}{2} = \frac{6 \pm 2\sqrt{5}}{2}$$

$$3 \pm \sqrt{5}$$

More Practice!

1. $x^2 + 10x - 2 = 0$	2. $x^2 - 11 = 4x$ $x^2 - 4x - 11 = 0$ $a \quad b \quad c$ $x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(1)(-11)}}{2(1)}$ $x = \frac{4 \pm \sqrt{20}}{2} = \frac{4 \pm 2\sqrt{5}}{2} = 2 \pm \sqrt{5}$
3. $x^2 - 8x = 20$	4. $x^2 - 5x - 36 = 0$
5. $x^2 + 6x + 10 = 0$	6. $x^2 - 12x - 18 = 0$ $a \quad b \quad c$ $x = \frac{-(-12) \pm \sqrt{(-12)^2 - 4(-1)(-18)}}{2(-1)}$ $x = \frac{12 \pm \sqrt{72}}{-2} = \frac{12 \pm 3\sqrt{8}}{-2} = \frac{12 \pm 6\sqrt{2}}{-2}$

$$-6 \pm 3\sqrt{2}$$

7. $-x^2 + 7x - 3 = 0$	8. $x^2 + 4x + 1 = 0$
9. $2x = 7 - x^2$	10. $x^2 + 11x = 0$ $(x^2 + 11x + 0 = 0)$ $a \quad b \quad c$ $x = \frac{-11 \pm \sqrt{(11)^2 - 4(1)(0)}}{2(1)}$ $x = \frac{-11 \pm \sqrt{121}}{2} = \frac{-11 \pm 11}{2} = 0, -11$
11. $2x^2 + 5x + 4 = 0$	12. $2x^2 + 7x - 9 = 0$
13. $2x^2 - 8 = 0$	14. $4x^2 + 9 = 12x$
15. $3x^2 - 1 = -8x$	16. $3x^2 + 7x = x^2 - 2x + 15$