

Directions: For each problem below, use the Quadratic Formula to find the EXACT roots. Leave all answers in simplest radical form.

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

<p>1. $x^2 + 3x - 4 = 0$</p> <p>a = <u>1</u> b = <u>3</u> c = <u>-4</u></p> <p>Quadratic Formula: $x = \frac{-3 \pm \sqrt{(3)^2 - 4(1)(-4)}}{2(1)} = \frac{-3 \pm \sqrt{9+16}}{2}$</p> <p>$x = \frac{-3 \pm \sqrt{25}}{2} = \frac{-3 \pm 5}{2}$ $x = \frac{-3+5}{2} = \boxed{1}$ $x = \frac{-3-5}{2} = \boxed{-4}$</p>	<p>2. $2x^2 + 4x + 1 = 0$</p> <p>a = <u>2</u> b = <u>4</u> c = <u>1</u></p> <p>Quadratic Formula: $x = \frac{-4 \pm \sqrt{(4)^2 - 4(2)(1)}}{2(2)} = \frac{-4 \pm \sqrt{16-8}}{4}$</p> <p>$x = \frac{-4 \pm \sqrt{8}}{4} = \frac{-4 \pm 2\sqrt{2}}{4} = \boxed{\frac{-2 \pm \sqrt{2}}{2}}$</p>
<p>3. $5x^2 - 3 = 0$**</p> <p>a = <u>5</u> b = <u>0</u> c = <u>-3</u></p> <p>Quadratic Formula: $x = \frac{0 \pm \sqrt{(0)^2 - 4(5)(-3)}}{2(5)} = \frac{0 \pm \sqrt{60}}{10}$</p> <p>$x = \frac{\pm 2\sqrt{15}}{10} = \boxed{\frac{\pm \sqrt{15}}{5}}$</p>	<p>4. $3x^2 - 10x = 0$**</p> <p>a = <u>3</u> b = <u>-10</u> c = <u>0</u></p> <p>Quadratic Formula: $x = \frac{10 \pm \sqrt{(-10)^2 - 4(3)(0)}}{2(3)} = \frac{10 \pm \sqrt{100}}{6}$</p> <p>$x = \frac{10 \pm 10}{6}$ $x = \frac{10+10}{6} = \frac{20}{6} = \boxed{\frac{10}{3}}$ $x = \frac{10-10}{6} = \boxed{0}$</p>
<p>5. $2x^2 + 7x + 50 = 0$</p> <p>a = <u>2</u> b = <u>7</u> c = <u>50</u></p> <p>Quadratic Formula: $x = \frac{-7 \pm \sqrt{(7)^2 - 4(2)(50)}}{2(2)}$</p> <p>$x = \frac{-7 \pm \sqrt{49-400}}{4} = \frac{-7 \pm \sqrt{-351}}{4}$</p> <p>NO SOLUTION</p>	<p>6. $x^2 + 4x + 4 = 0$</p> <p>a = <u>1</u> b = <u>4</u> c = <u>4</u></p> <p>Quadratic Formula: $x = \frac{-4 \pm \sqrt{(4)^2 - 4(1)(4)}}{2(1)}$</p> <p>$x = \frac{-4 \pm \sqrt{16-16}}{2} = \frac{-4 \pm \sqrt{0}}{2}$</p> <p>$x = \frac{-4}{2} = \boxed{-2}$</p>

** Make sure you put everything on the same side FIRST before finding a, b, and c values.