

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

✓ Used to solve for x in the equation $ax^2 + bx + c = 0$

✓ The Quadratic Formula is most helpful to solve for x when the equation will not factor.

<p>1. $2x^2 - x - 6 = 0$</p> <div style="border: 1px solid purple; padding: 10px; width: fit-content; margin: 10px auto;"> $\begin{matrix} 2 \\ -3/2 \end{matrix}$ </div> <p>$x =$ _____</p>	<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">$b^2 - 4ac$</div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 10px auto;">$2a$</div>	<p>2. $x^2 + 4x - 9 = 0$</p> <div style="border: 1px solid purple; padding: 10px; width: fit-content; margin: 10px auto;"> $-2 \pm \sqrt{13}$ </div> <p>$x =$ _____</p>	<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">$b^2 - 4ac$</div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 10px auto;">$2a$</div>
<p>3. $x^2 + 3x - 5 = 0$</p> <div style="border: 1px solid purple; border-radius: 50%; padding: 10px; width: fit-content; margin: 10px auto;"> $\frac{-3 \pm \sqrt{29}}{2}$ </div> <p>$x =$ _____</p>	<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">$b^2 - 4ac$</div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 10px auto;">$2a$</div>	<p>4. $x^2 - 10x + 25 = 0$</p> <div style="border: 1px solid purple; border-radius: 50%; padding: 10px; width: fit-content; margin: 10px auto;"> 5 </div> <p>$x =$ _____</p>	<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">$b^2 - 4ac$</div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 10px auto;">$2a$</div>
<p>3. $6x^2 + 6x + 5 = 0$</p> <p>$x =$ _____</p>	<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">$b^2 - 4ac$</div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 10px auto;">$2a$</div>	<p>4. $5x^2 - 2x - 2 = 0$</p> <p>$x =$ _____</p>	<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">$b^2 - 4ac$</div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 10px auto;">$2a$</div>

pg 8 #2: $x^2 + 4x - 9 = 0$

$A=1 \quad B=4 \quad C=-9$

$$\frac{-4 \pm \sqrt{52}}{2}$$

$$\begin{array}{r} 2 \overline{)52} \\ \underline{4} \\ 12 \\ \underline{12} \\ 0 \end{array}$$

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

$$\frac{-4 \pm \sqrt{4^2 - 4(1)(-9)}}{2(1)}$$

$$\frac{-4 \pm 2\sqrt{13}}{2} = \boxed{-2 \pm \sqrt{13}}$$

pg 8 #3: $x^2 + 3x - 5 = 0$

$A=1 \quad B=3 \quad C=-5$

$$\frac{-3 \pm \sqrt{(3)^2 - 4(1)(-5)}}{2(1)}$$

$$\boxed{\frac{-3 \pm \sqrt{29}}{2}}$$

pg 8 #4: $x^2 - 10x + 25 = 0 = (x-5)(x-5) = 0 \quad x=5$

$A=1 \quad B=-10 \quad C=25$

$$\frac{10 \pm \sqrt{(-10)^2 - 4(1)(25)}}{2} = \frac{10 \pm \sqrt{0}}{2} = \frac{10}{2} = 5$$

pg 8 #5: $6x^2 + 6x + 5 = 0$

$A=6 \quad B=6 \quad C=5$

$$\frac{-6 \pm \sqrt{(6)^2 - 4(6)(5)}}{2(6)} = \frac{-6 \pm \sqrt{-84}}{12}$$

$$\begin{array}{r} \sqrt{84} \\ i \downarrow \\ 2i\sqrt{21} \end{array} \quad \begin{array}{r} 2 \overline{)84} \\ \underline{4} \\ 40 \\ \underline{42} \\ 2 \end{array}$$

$$\frac{-6 \pm 2i\sqrt{21}}{12} = \boxed{\frac{-3 \pm i\sqrt{21}}{6}}$$

pg 8 #6: $5x^2 - 2x - 2 = 0$

$A=5$ $B=-2$ $C=-2$

$$\frac{-(-2) \pm \sqrt{(-2)^2 - 4(5)(-2)}}{2(5)} = \frac{2 \pm \sqrt{44}}{10}$$

$$\begin{array}{r} 11 \overline{)44} \\ 22 \\ \hline 22 \\ 0 \end{array}$$

$$\frac{2 \pm 2\sqrt{11}}{10} = \frac{1 \pm \sqrt{11}}{5}$$

pg 9 #1: $4x^2 + 11x - 20 = 0$

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 $x^2 + 11x - 80 = 0$

$$(x + \frac{16}{4})(x - \frac{5}{4}) = 0$$

$$(x + 4)(4x - 5) = 0$$

$$x = -4 \quad x = \frac{5}{4}$$

QF
$$\frac{-11 \pm \sqrt{(11)^2 - 4(4)(-20)}}{2(4)}$$

$$\frac{-11 \pm \sqrt{441}}{8}$$

$$\frac{-11 \pm 21}{8} \begin{cases} 5/4 \\ -4 \end{cases}$$