Starter 14 Feb 2017

Factor and solve.

$10 - 2 = 8$

$1x^2 - 8x - 20 = 0$

20: $1 \cdot 20$, $2 \cdot 10$, $4 \cdot 5$

$(x + 2)(x - 10) = 0$

$x + 2 = 0 \qquad x - 10 = 0$

$x = -2$ & $x = 10$

Using the quadratic formula to solve equations.

$ax^2 + bx + c = 0$, where $a \neq 0$, then $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$1x^2 - 6x - 40 = 0$ $\quad a = 1$, $b = -6$, $c = -40$

$x = \dfrac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(-40)}}{2(1)}$

$= \dfrac{6 \pm \sqrt{36 + 160}}{2} = \dfrac{6 \pm \sqrt{196}}{2}$

$x = \dfrac{6 + \sqrt{196}}{2}$ & $\dfrac{6 - \sqrt{196}}{2}$

$x = 10$ & -4

Using the quadratic formula to solve equations.

$ax^2 + bx + c = 0$, where $a \neq 0$, then $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$2n^2 - 7n - 3 = 0 \quad a = 2, b = -7, c = -3$

$x = \dfrac{-(-7) \pm \sqrt{(-7)^2 - 4(2)(-3)}}{2(2)}$

$= \dfrac{7 \pm \sqrt{49 + 24}}{4} = \dfrac{7 \pm \sqrt{73}}{4}$

$x = \dfrac{7 + \sqrt{73}}{4}$ & $\dfrac{7 - \sqrt{73}}{4}$

$x = 3.89$ & $-.39$

Using the quadratic formula to solve equations.

$ax^2 + bx + c = 0$, where $a \neq 0$, then $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$1y^2 - 5y + 12 = 0 \quad a = 1, b = -5, c = 12$

$y = \dfrac{-(-5) \pm \sqrt{(-5)^2 - 4(1)(12)}}{2(1)}$

$y = \dfrac{5 \pm \sqrt{25 - 48}}{2} = \dfrac{5 \pm \sqrt{-23}}{2}$

$y = \dfrac{5 + \sqrt{-23}}{2}$ & $\dfrac{5 - \sqrt{-23}}{2}$

No Real Solutions

Cannot take $\sqrt{\ }$ of a neg. number

Using the discriminant to determine the number of solutions or if there are any real solutions.

$ax^2 + bx + c = 0$, where $a \neq 0$, then $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$b^2 - 4ac$ is called the discriminant.

1) If it is a number other than zero and NOT negative, there will be 2 real solutions.

2) If it is zero, there will be 1 real solution.

3) If it is negative there will be 0 real solutions.

A. Determine the number of real solutions for each. $b^2 - 4ac$

B. If it has real solutions, find them to the nearest hundredth.

1) $x^2 - 8x - 4 = 0$

2) $x^2 + 3x + 6 = 0$

3) $x^2 - 2x = 35$

4) $3x^2 + 2x + 6 = 0$

5) $6x^2 - 4x - 9 = 0$

A. Determine the number of real solutions for each.
B. If it has real solutions, find them to the nearest hundredth.

1) $x^2 - 8x - 4 = 0$ $a=1$

A. $b^2 - 4ac$ $b=-8$ $c=-4$

$(-8)^2 - 4(1)(-4) = 80$

2 real solutions

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

B. $x = \frac{-(-8) \pm \sqrt{80}}{2(1)} = \frac{8 \pm \sqrt{80}}{2}$

$x = \frac{8+\sqrt{80}}{2}$ & $\frac{8-\sqrt{80}}{2}$

$x = 8.47$ & $-.47$