

Solving Quadratics

* to solve, equations must equal in zero!

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

ex: $x^2 + 2x + 8 = 0$

$$x = \frac{-2 \pm \sqrt{4 - 4(1)(8)}}{2}$$

$$\frac{-2 \pm \sqrt{-28}}{2}$$

no real solutions.
(negative square roots not possible.)

$x^2 + 5x - 4 = 0$

$$\frac{-5 \pm \sqrt{25 + 16}}{2}$$

$$\frac{-5 \pm \sqrt{41}}{2}$$

(don't forget to ADD when there are two negatives!)

• graphing calculator

ex: $3x^2 + 40x - 128 = 0$

$x = -16, 2.6$

How to solve...

1. $y =$ → put equation
2. hit GRAPH
3. 2nd + calc → Zero
4. left bound = enter
right bound (below x axis) = enter
5. guess = enter

$x = -16$

do this on the other side of the y-axis

* REMEMBER: we draw from left to right!



* factoring takes PRACTICE!

• solve by factoring

ex: $x^2 - 10x - 11 = 0$

$$\begin{array}{rcl} x & & -11 = 0 \\ x & & +1 = 0 \end{array}$$

$x = 11, x = -1$

* in order to solve, the factored equation must be set equal to ZERO.

$x^2 + 18x + 77 = 0$

$$\begin{array}{rcl} x & + & 11 = 0 \\ x & + & 7 = 0 \end{array}$$

$x = -11, x = -7$

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