

# #6 Solving Quadratics by factoring

9/10/15

When there is an equals sign in a factoring problem, you should solve it.

Ex 1)  $x^2 + 7x + 10 = 0$

$(x^2 + 5x)(2x + 10) = 0$

$x(x + 5) + 2(x + 5) = 0$

$(x + 2)(x + 5) = 0$  New step

$x + 2 = 0$

$-2 -2$

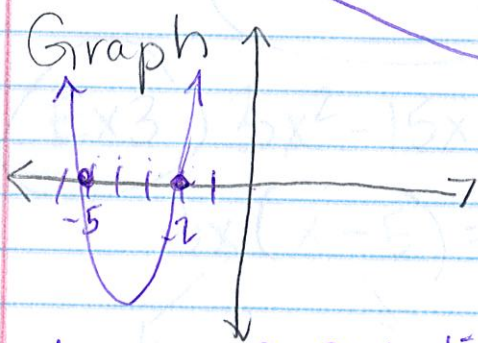
$x = -2$

$x + 5 = 0$

$-5 -5$

$x = -5$

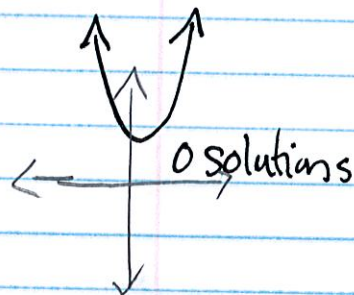
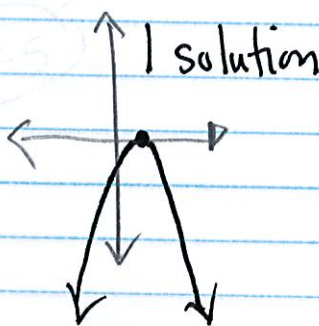
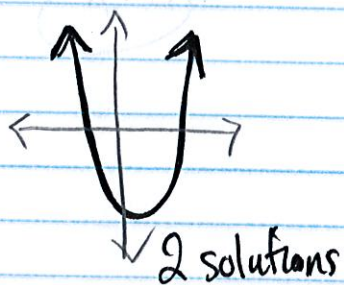
Set each parenthesis equal to zero



Solutions  
 x-intercepts  
 zeros  
 roots

$(-2, 0)$   
 $(-5, 0)$

## types of Solutions



$$4x^2 + 28x + 21 \quad \text{Standard Form} \quad ax^2 + bx + c = 0$$

\* everything on one side

Ex2)  $4x^2 - 21 = -8x$

Before you factor, make sure equation is in Standard form

$$4x^2 + 8x - 21 = 0$$

$$(4x^2 - 16x) + (14x - 21)$$

$$\begin{array}{r} -84 \quad | \quad 8 \\ \hline -6 \quad | \quad 14 \end{array}$$

$$2x(2x - 3) + 7(2x - 3) = 0$$

$$(2x + 7)(2x - 3) = 0$$

← New step

$$2x + 7 = 0$$

$$2x - 3 = 0$$

$$-7 \quad -1$$

$$+3 \quad +3$$

$$2x = -7$$

$$2x = 3$$

$$x = \frac{-7}{2} = -3.5$$

$$x = \frac{3}{2} \text{ or } 1.5$$

$$x = -3.5, 1.5$$

Ex3)  $3x^2 - 15x = 0$

No C value (no # by itself)

$$3x(x - 5) = 0$$

factor out the GCF and then set equal to zero

$$3x = 0$$

$$x - 5 = 0$$

$$x = 0$$

$$x = 5$$