C11 - 4.1 - Solving $x-intercepts$ Notes

Solve for $x-intercepts$.

$y = x^2 - 4x + 3$
$y = (x-1)(x-3)$
$0 = (x-1)(x-3)$

$\_\_-1\_\_ \times \_\_-3\_\_ = 3$
$\_\_-1\_\_ + \_\_-3\_\_ = -4$

Factor
$x-int$: Set y equal to zero, $(y=0)$

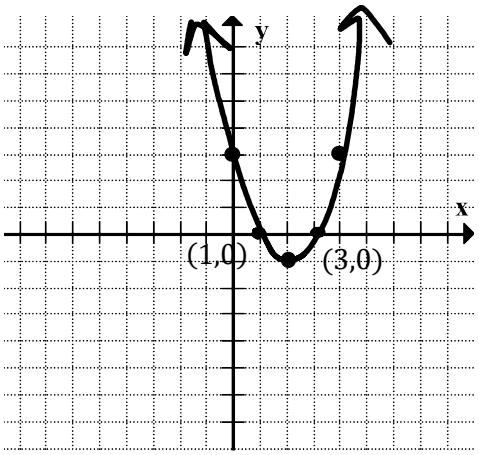
$x - 1 = 0$ $\quad$ $x - 3 = 0$
$+1 \quad +1$ $\quad$ $+3 \quad +3$
$x = +1$ $\quad$ $x = +3$

Set the brackets equal to zero seperately

Solve

$(1,0) \quad x-int: \quad (3,0)$

State $x-intercepts$ $(x,0)$



Draw a graph and label $x-intercepts$.

$(a)(b) = 0$	
$a = 0$	$b = 0$

$y = 2x^2 - 3x - 2$
$y = 2x^2 - 4x + 1x - 2$
$y = (2x^2 - 4x)(+1x - 2)$
$y = 2x(x-2) + 1(x-2)$
$y = (x-2)(2x+1)$
$0 = (x-2)(2x+1)$

$\_\_-4\_\_ \times \_\_1\_\_ = -4$
$\_\_-4\_\_ + \_\_1\_\_ = -3$

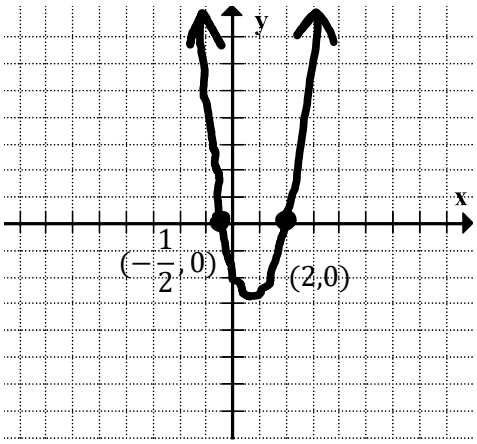
Factor
Decompose
Group
GCF
Switch
$x-int$: Set y equal to zero, $(y=0)$

$x - 2 = 0$ $\quad$ $2x + 1 = 0$
$+2 \quad +2$ $\quad$ $-1 \quad -1$
$x = 2$ $\quad$ $\frac{2x}{2} = -\frac{1}{2}$
$x = -\frac{1}{2}$

State $x-intercepts$ $(x,0)$

$x-int$: $\quad (2,0) \quad (-\frac{1}{2},0)$

Draw a graph and label $x-intercepts$.



Set the brackets equal to zero seperately

Solve

C11 - 4.1 - Solving $x-intercepts$ Notes

Set $y = 0$ *and factor to find* $x-intercepts.$ $(x, 0)$

$y = x^2 - 6x + 5$
$0 = x^2 - 6x + 5$
$0 = (x-5)(x-1)$

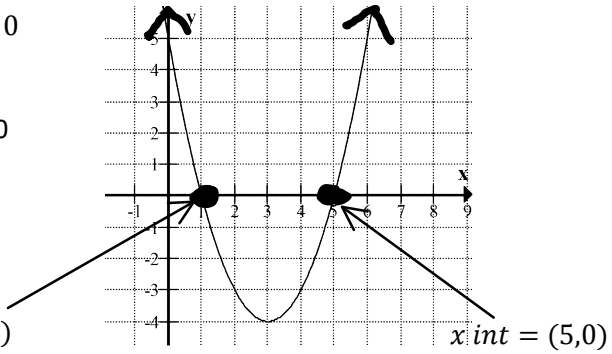
$x - 5 = 0$ $\quad$ $x - 1 = 0$
$+5 \ \ +5$ $\quad$ $+1 \ \ +1$
$x = 5$ $\quad$ $x = 1$

$(5,0)$ $\quad$ $(1,0)$

$x\ intercepts$: set $y = 0$
Factor.

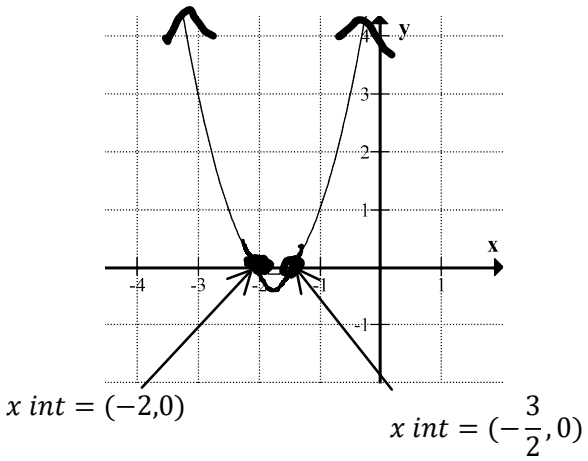
Set brackets equal to 0 separately and solve.

$x - intercepts$



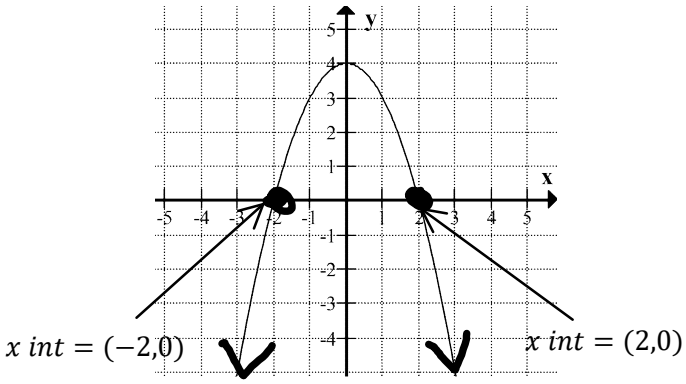
$y = 2x^2 + 7x + 6$
$0 = 2x^2 + 7x + 6$
$0 = 2x^2 + 4x + 3x + 6$
$0 = 2x(x+2) + 3(x+2)$
$0 = (2x+3)(x+2)$

$2x + 3 = 0$ $\quad$ $x + 2 = 0$
$-3 \ \ -3$ $\quad$ $-2 \ \ -2$
$2x = -3$ $\quad$ $x = -2$
$\frac{2x}{2} = \frac{-3}{2}$
$x = -\frac{3}{2}$



$y = -x^2 + 4$
$0 = -x^2 + 4$
$0 = -(x^2 - 4)$ $\quad$ GCF: -1
$0 = -(x+2)(x-2)$ $\quad$ Factor.

$x + 2 = 0$ $\quad$ $x - 2 = 0$
$-2 \ \ -2$ $\quad$ $+2 \ \ +2$
$x = -2$ $\quad$ $x = 2$



$y = -x^2 + 2x$
$0 = -x^2 + 2x$
$0 = -x(x-2)$

$x = 0$ $\quad$ $x - 2 = 0$
$+2 \ \ +2$
$x = 2$