1) $48 = 4 \cdot 12$

$2 \cdot 2 \cdot 4 \cdot 3$

$2 \cdot 2$

$2 \cdot 2 \cdot 2 \cdot 2 \cdot 3$

$4 \cdot 12$

$2 \cdot 2 \cdot 2 \cdot 6$

$2 \cdot 3$

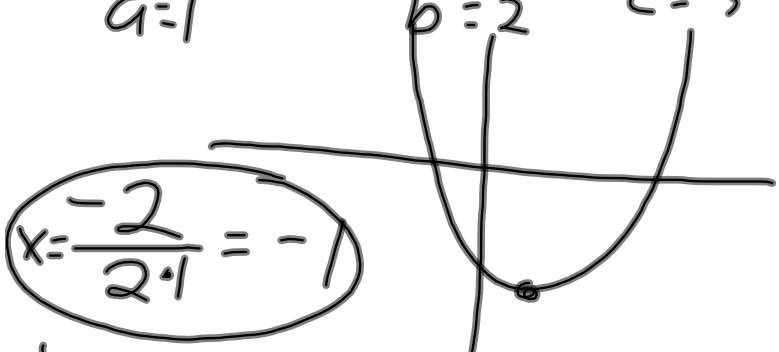
$2 \cdot 2 \cdot 2 \cdot 2 \cdot 3$

Factoring of Polynomials

$y = x^2 + 2x + 3$

$a = 1 \quad b = 2 \quad c = 3$

Standard Form



$x = \frac{-2}{2 \cdot 1} = -1$

$y = (-1)^2 + 2(-1) + 3$

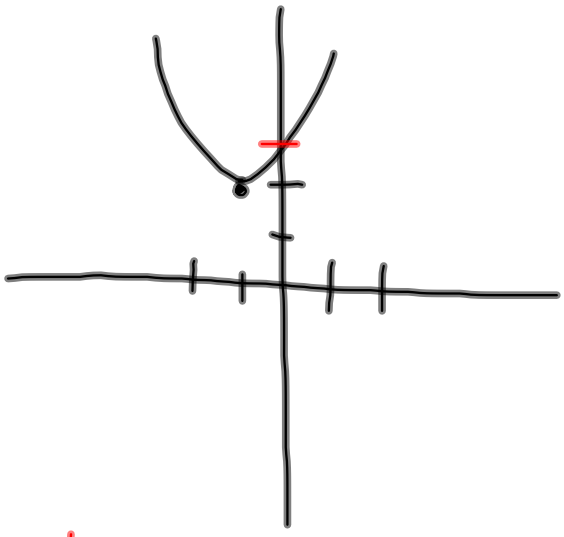
$= 1 - 2 + 3$

$y = 4 - 2 = 2$

$y = 2$

$vertex = \frac{-b}{2a}$

x-value



linear equation

$y = mx + b$

$y = 2x + 3$ y-int

$Y = X^2 + 8X + 7$

Vertex

$X = \frac{-8}{2 \cdot 1} = \frac{-8}{2} = -4$

$Y = (-4)^2 + 8(-4) + 7$

$16 - 32 + 7$

$Y = -9$

Vertex = $(-4, -9)$

Y-int = 7

1) Find the vertex
2) Find the Y-int
3) Find the X-ints if they exist.

1) vertex

$X = \frac{-b}{2a}$

Y - plug X into equation

2) Y-int is simply the constant of the equation.

$y = x^2 + 8x + 7$

$a = 1 \quad b = 8 \quad c = 7$

8	7
8	$1 \cdot 7$
	$(-1)(-7)$

Multiples of 7

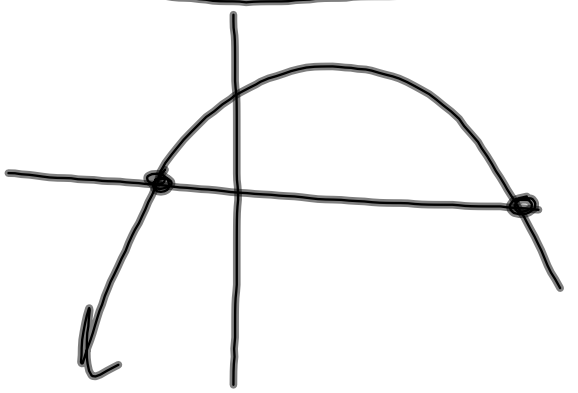
Something that equals 8

$y = (x+1)(x+7)$

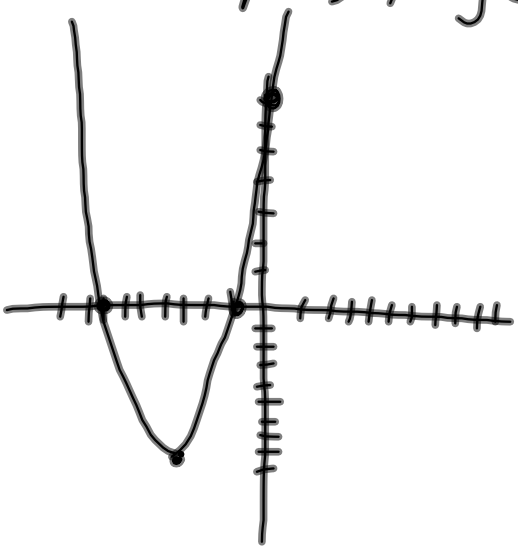
$x + 1 = 0 \quad | \quad x + 7 = 0$

$-1 \quad | \quad -7$

$x = -1 \quad | \quad x = -7$



← Add the Multiples together



$X^2 - 11x + 10$

$(X-1)(X-10)$

-11	10
-11	-1, -10
7	2, 5
11	1, 10
-7	-2, -5

← Add

$3p^2 - 2p - 5$ $\quad -15$

$(x+1)(3x-5)$ $\quad \frac{1}{1} = \frac{3}{3}$ $\quad -2$ $\quad \frac{-5}{3}$

8) $9(9h^2 + 66h + 21)$ $\quad 9 \times 21$

$(3h+1)(h+7)$ $\quad \frac{1}{3} = \frac{3}{9}$ $\quad 189$ $\quad 66$ $\quad \frac{63}{9} = \frac{7}{1}$