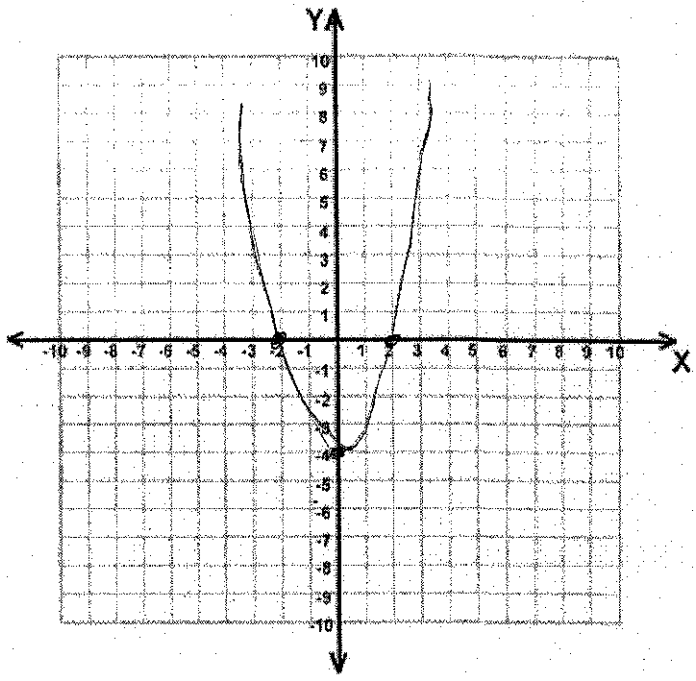
Graph in both standard and intercept form. Do they both give the same result? Why or why not?

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



Intercept Form Work

x-int:

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

$x = 2$ $\quad$ $x = -2$

y-int: $y = (0-2)(0+2)$

$-2 \cdot 2$

$y = -4$

$(0, -4)$

Line of Symmetry

$\frac{-2+2}{2} = \frac{0}{2} = 0$

vertex: $(0, -4)$

Standard Form Work

$y = x^2 + 2x - 2x - 4$

$x^2 - 4$

rewrite: $y = x^2 + 0x - 4$

y-int: $y = 0^2 + 0 - 4$

$(0, 4)$

Line of Sym: $x = \frac{-b}{2a}$

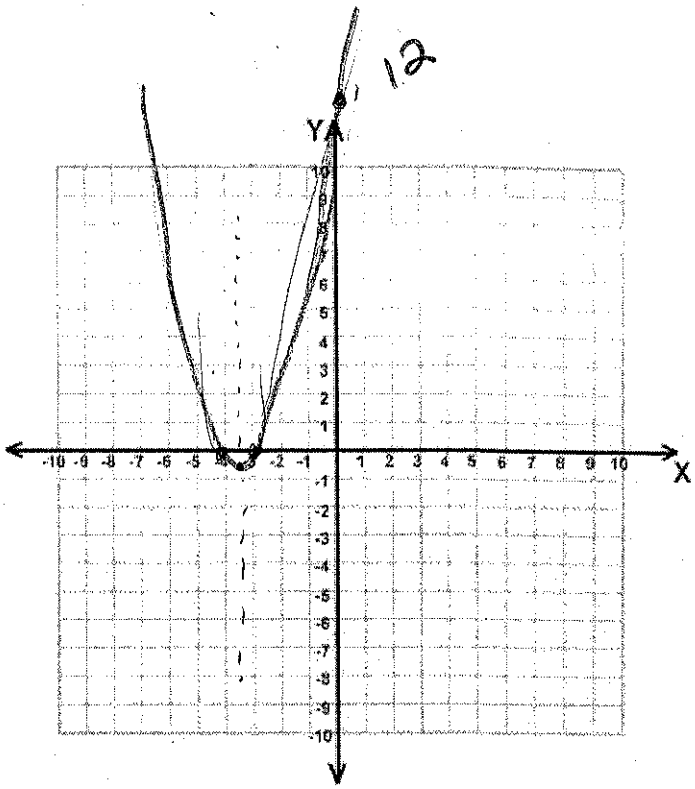
$x = \frac{0}{2} = 0$

Vertex: $y = 0^2 + 0 - 4$ $(0, -4)$

Graphing in Both Standard and Intercept Form May 5, 2015

Graph

$y = (x + 3)(x + 4)$



Find your x-intercepts

(when y= 0)

$x+3=0$ $\quad x+4=0$

$x=-3$ $\quad x=-4$

Find your y-intercept

(when x=0)

$y=(0+3)(0+4)$

$y=12 \quad (0,12)$

vertex $y=(-3.5+3)(-3.5+4)$

$(-3.5,-.25) \quad -.5 \cdot .5 = -.25$

Find your line of symmetry:

(midway point since parabolas are symmetrical)

Add both intercepts and divide by 2 to find middle

Line of sym

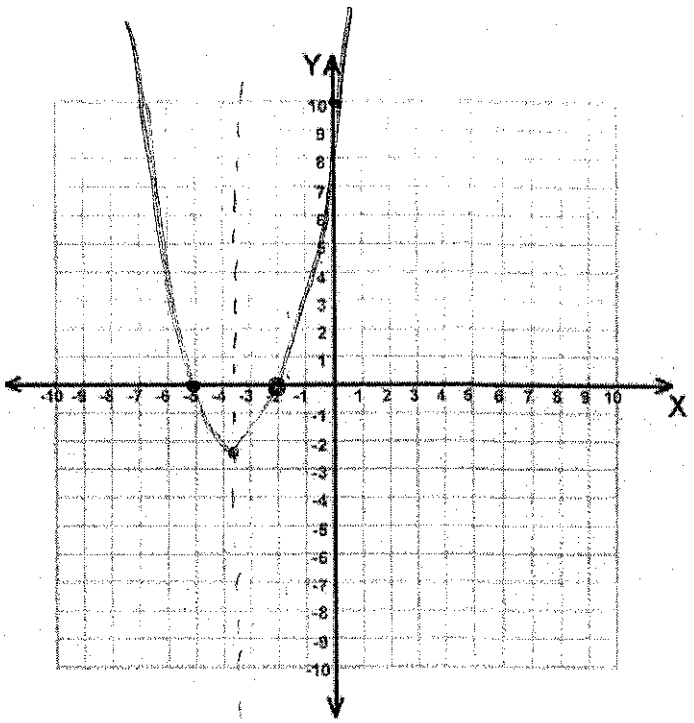
$\frac{-3+-4}{2} = \frac{-7}{2} = -3.5$

Find your vertex point:

(Substitute x in from line of symmetry)

Graph

$y = -x^2 - 7x - 10$



Standard Form Work

Factor out -1 (GCF)

Intercept Form Work

$-1(x^2 + 7x + 10)$

$(x+5)(x+2)$

x-int $x = -5$ $x = -2$

y-int $(0, 10)$

Vertex $(-3.5, -2.25)$

$(-3.5+5)(-3.5+2)$

$1.5 \times -1.5 = -2.25$

$\frac{-5+2}{2} = \frac{-7}{2} = -3.5$

Graphing in Both Standard and Intercept Form

May 5, 2015

Graph

$y = -3x^2 - 6x - 3$

$a = -3 \quad b = -6 \quad c = -3$

Standard Form Work

Line of sym:

$$x = \frac{-b}{2a} = \frac{6}{2(-3)} = \frac{6}{-6} = -1$$

Vertex Point:

$y = -3(-1^2) - 6(-1) - 3$

$= -3 + 6 - 3$

$= 3 - 3$

$= 0$

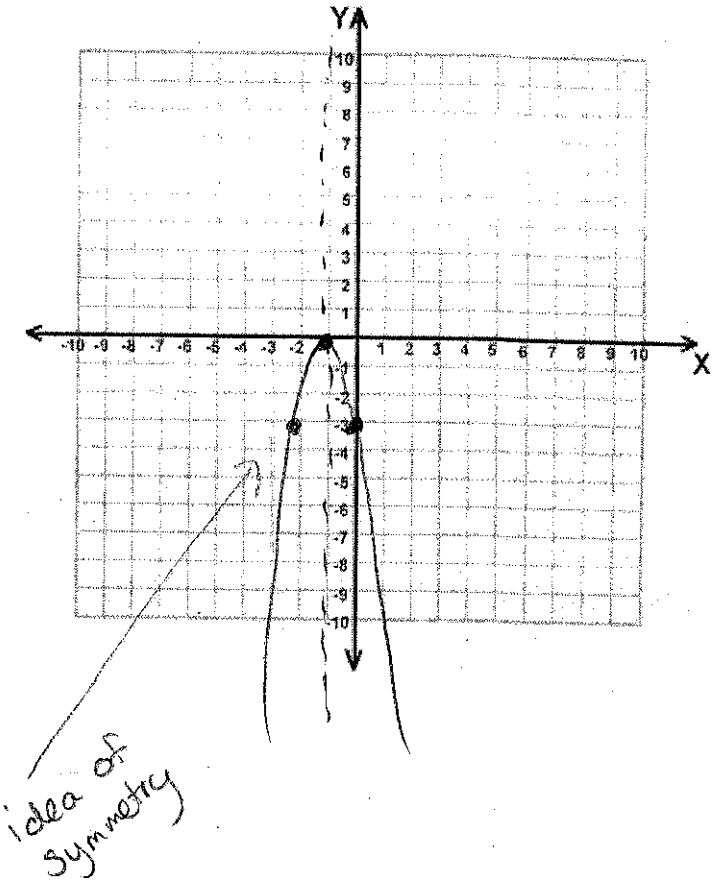
$(-1, 0)$

y-int

$y = -3(0^2) - 6(0) - 3$

$y = 0 - 0 - 3$

$y = -3 \quad (0, -3)$



Intercept Form Work

$-3(x^2 + 2x + 1)$

$-3(x+1)(x+1)$

x-int = -1

y-int = $-3(0+1)(0+1)$

$-3 \cdot 1$

y-int $(0, -3)$

Line of sym

only 1 x-int so line of symmetry = x-int

$x = -1$

Graphing in Both Standard and Intercept Form

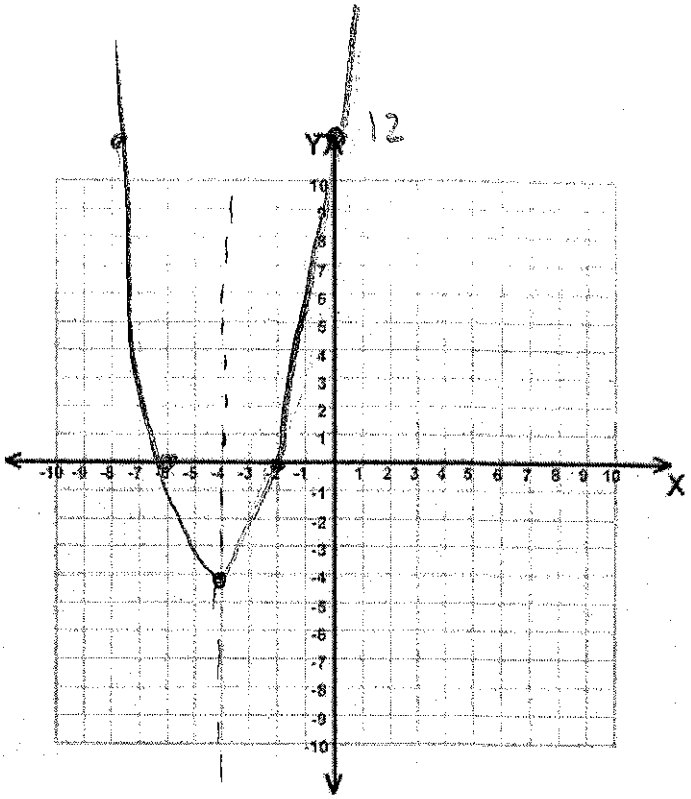
May 5, 2015

Find your vertex point:

(Substitute x in from line of symmetry)

Graph

$y = (x + 2)(x + 6)$



Intercept Form Work

y-int: $(0+2)(0+6)$

$2 \cdot 6$

y-int: $(0, 12)$

x-int

$x+2=0$ $\quad$ $x+6=0$

$x=-2$ $\quad$ $x=-6$

Line of sym

$\frac{-2+-6}{2} = \frac{-8}{2} = -4$ $\quad$ $(-4, -4)$

Vertex

$y = (-4+2)(-4+6) = -2 \cdot 2 = -4$

Standard Form Work

$y = x^2 + 8x + 12$

Line of sym:

$x = \frac{-b}{2a} \Rightarrow \frac{-8}{2(1)} = \frac{-8}{2} = -4$

Vertex

$y = (-4^2) + 8(-4) + 12$

$16 - 32 + 12 = -4$

$(-4, -4)$

y-int

$y = 0^2 + 8(0) + 12$

$(0, 12)$

Graphing in Both Standard and Intercept Form

May 5, 2015

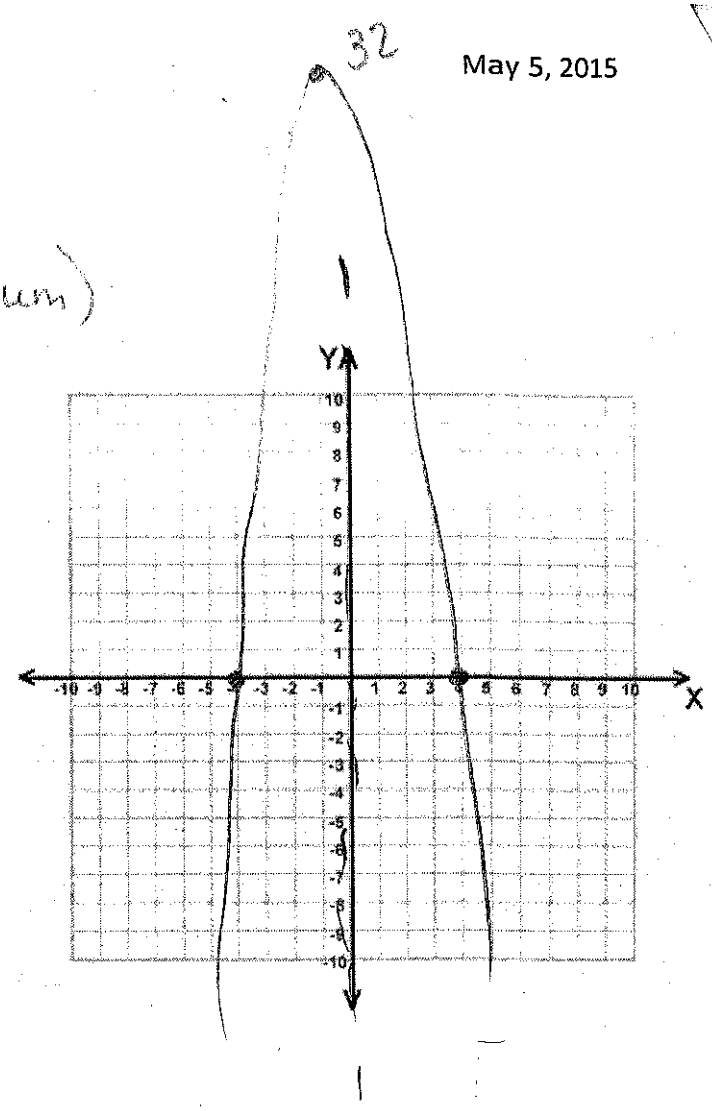
Find your vertex point:

(Substitute x in from line of symmetry)

Graph ← opens down (maximum)

$y = -2x^2 + 32$

$y = -2x^2 + 0x + 32$



Standard Form Work

Line of Sym: $x = \frac{-b}{2a}$

$x = \frac{0}{2(-2)} = \frac{0}{-4} = 0$

Vertex: $y = -2(0^2) + 32$

$y = 32$

$(0, 32)$

y-int: $-2(0^2) + 32$

$(0, 32)$

Intercept Form Work

$-2(x^2 - 16)$

$-2(x+4)(x-4)$

y-int: $x + 4 = 0$ $\quad x = -4$ $\qquad x - 4 = 0$ $\quad x = 4$

x-int: $-2(0+4)(0-4)$

$-2(4)(-4)$

$32 \qquad (0, 32)$

Line of Sym

$\frac{-4+4}{2} = \frac{0}{2} = 0$

vertex

$y = -2(0+4)(0-4)$

$-2(4)(-4)$

$y = 32$

$(0, 32)$