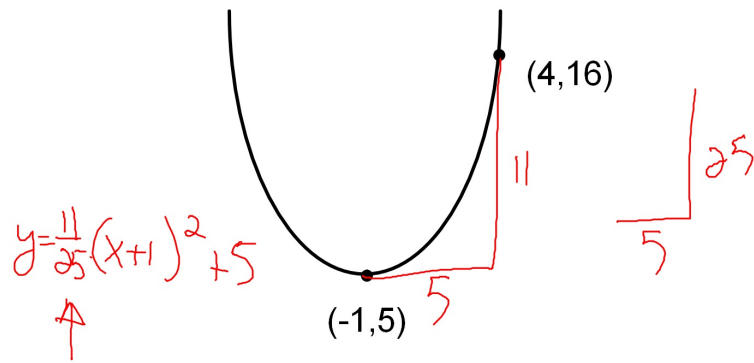


Write the equation of this parabola:



1. Write this function in Standard Form:

$$y = 2(x+5)^2 - 9$$

$$2(x^2 + 10x + 25) - 9 = 2x^2 + 20x + 50 - 9 = 2x^2 + 20x + 41$$

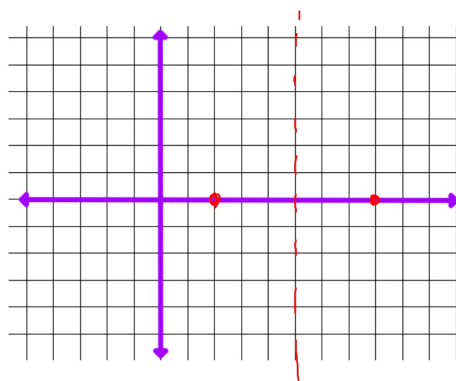
2. Write this function in Vertex Form:

$$y = x^2 + 6x + 13 \Rightarrow a(x-h)^2 + k$$

$$\text{LOS } x = \frac{-6}{2} = -3 \quad y = 1(x+3)^2 + 4$$

Handwritten note: $(-3, 4)$

The x-intercepts of a parabola are 2 and 8, find the equation for the Line of Symmetry.



Forms for the Equation of a Quadratic

Standard Form	Vertex Form	Intercept Form (Factored Form)
$y = ax^2 + bx + c$	$y = a(x - h)^2 + k$	$y = (x - m)(x + n)$
LOS: $x = \frac{-b}{2a}$	Vertex: (h, k)	LOS: $x = \text{avg of x-int.}$
Vertex: $(\frac{-b}{2a}, \quad)$	LOS: $x = h$	Vertex: $(\quad, \quad)$
y - int: Replace x with zero C	y - int: Replace x with zero it is NOT k	y - int: Replace x with zero

$$y = (x+6)(x-18)$$

$$x\text{-int} = -6, 18$$

$$\text{LOS } x = \frac{-6+18}{2} = \frac{12}{2} = 6$$

$$\text{Vertex } (6, -144)$$

$$y\text{-int } (6)(-18) = -108$$

Intercept Form (Factored Form)

$$Y = (x-m)(x+n)$$

1. Find x-intercepts first: $0 = (x-m)(x+n)$
 $x\text{-int} = m, -n$
2. Find LOS: $x = \text{average of the x-int} = \frac{m+(-n)}{2}$
3. Find the Vertex (LOS,)
 $\swarrow$ plug in LOS to find y
4. Find y-int: Replace x with zero.