

$$y = x^2 + 6x - 27$$

$$(x)^2 + (6x) - 27$$

$$\boxed{-27}$$

$$0 = x^2 + 6x - 27$$

$$(x+9)(x-3) = 0$$

$$\boxed{-9} \quad \boxed{3}$$

symmetry

$$\frac{-9 + 3}{2} = \frac{-6}{2} = \boxed{-3}$$

$$x^2 + 6x - 27$$

$$(-3)^2 + 6(-3) - 27$$

$$9 - 18 - 27$$

$$-36$$

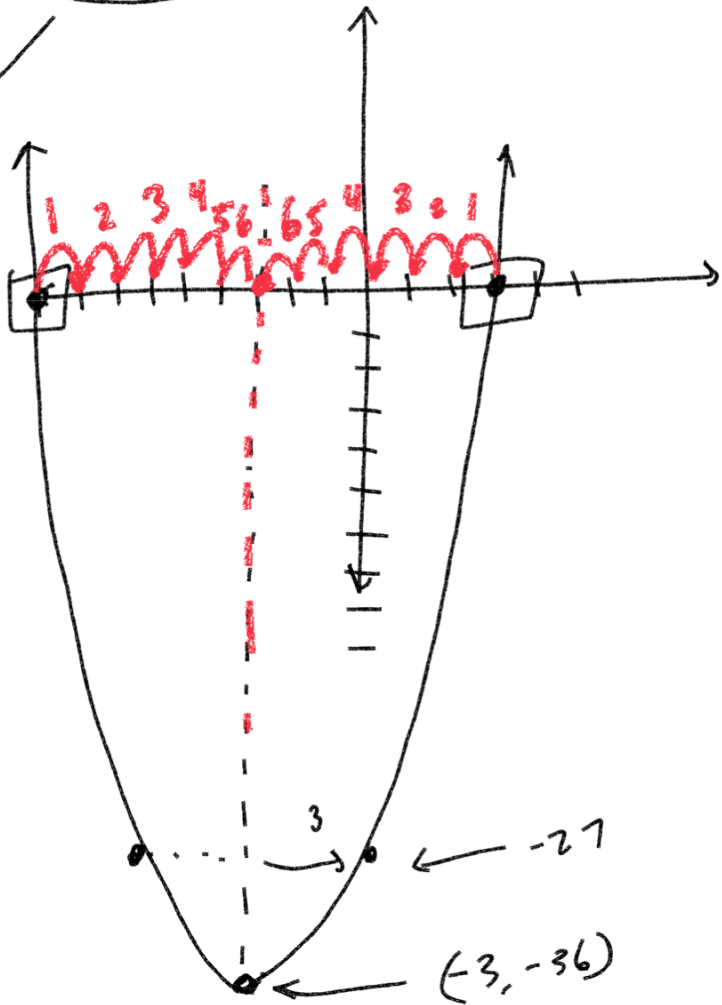
$$y\text{-int} \rightarrow -27$$

$$x=0$$

$$x\text{-int} \rightarrow \text{roots}$$

$$y=0$$

* quadratic formula *



Distance Formula

$$(8, 2) \quad (-3, -5)$$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

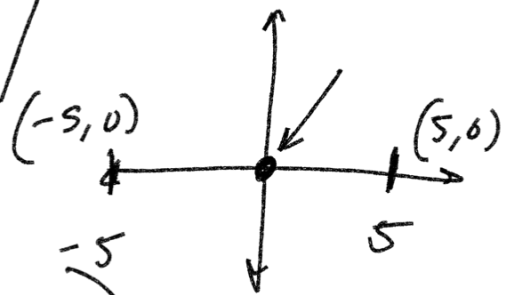
$$\sqrt{(8 - (-3))^2 + (2 - (-5))^2}$$

$$\sqrt{(11)^2 + (7)^2}$$

$$\sqrt{121 + 49}$$

$$\sqrt{170}$$

$$\approx 13$$



Midpoint

Average

$$\left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2} \right)$$

$$\frac{-5 - 5}{2} = -5$$

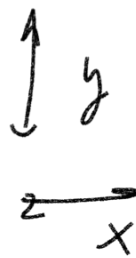
$$\frac{5 - (-5)}{2} = 5$$

$$5 + (-5) = 0$$

$$(8, 2) \quad (-3, -5)$$

$$\left(\frac{5}{2}, \frac{-3}{2} \right)$$

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$$



$$3x - 5y = 15$$

$$\begin{array}{r} -3x \\ \hline -5y = -3x + 15 \\ \hline \end{array}$$

$$y = \frac{3}{5}x + 3$$

$$\text{slope} = \frac{3}{5}$$

$$y\text{-int} = 3$$

$$\frac{-5y}{-5} = \frac{-3x + 15}{-5}$$

$$y = \frac{3}{5}x - 3$$

$$x_1, y_1$$

$$(1, 8)$$

$$m = -3$$

point-slope

$$y = mx + b$$

$$y - y_1 = m(x - x_1)$$

$$y - 8 = -3(x - 1)$$

$$y - 8 = -3x + 3$$

$$\begin{array}{r} +8 \\ \hline \end{array}$$

$$y = -3x + 11$$

$$\begin{array}{r} 3x + 2y = 12 \\ -3x \qquad -3x \end{array}$$

line perpendicular
through $(-3, 8)$

$$\frac{2y}{2} = \frac{-3x + 12}{2}$$

$$m = \frac{-3}{2} \rightarrow -\frac{2}{3} \rightarrow \left(\frac{2}{3}\right)$$

$$y = \left(\frac{-3}{2}\right)x + 6$$

$$m = \frac{2}{3} \quad (-3, 8)$$

$$y = \frac{2}{3}x + 10$$

$$y = mx + b$$

$$8 = \left(\frac{2}{3}\right)(-3) + b$$

$$b = 10$$

$$\begin{array}{r} 8 = -2 + b \\ +2 \quad +2 \end{array}$$

V varies directly with h and inversely with a
when $V = 12$ $h = 8$ $a = 6$

$$V = \frac{kh}{a} \quad \frac{6}{8}(12) = \left(\frac{8k}{6}\right)\frac{6}{8}$$

$$k = \frac{72}{8} = 9$$

$$k = 9$$

$$V = \frac{9h}{a}$$

