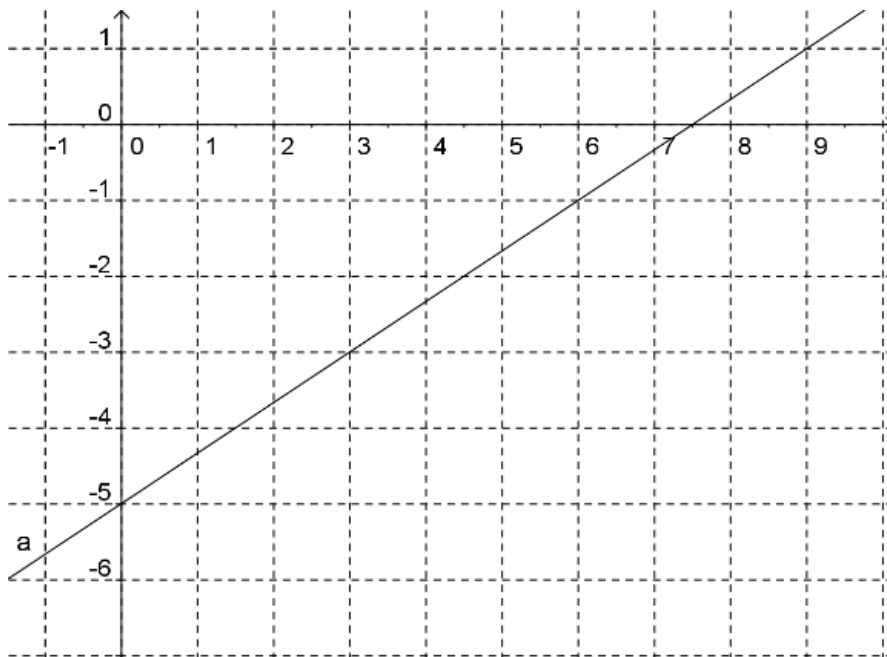


From your worksheet - a Linear Relation



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Properties:

$$y\text{-int} = -5$$

Slope is \_\_\_\_\_?

points  $(3, -3)$ ,  $(0, -5)$

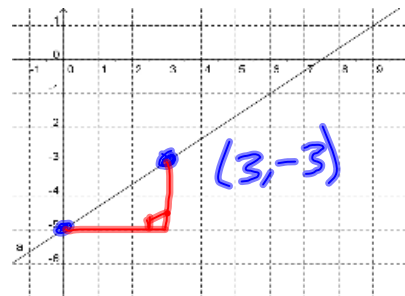
$$\text{rise} = 2$$

$$\text{run} = 3$$

$$\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{2}{3}$$

positive  
slope

$$x\text{-int} = 7.5$$

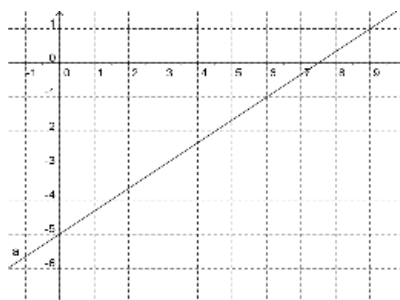


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Equation:

$$y = mx + b$$

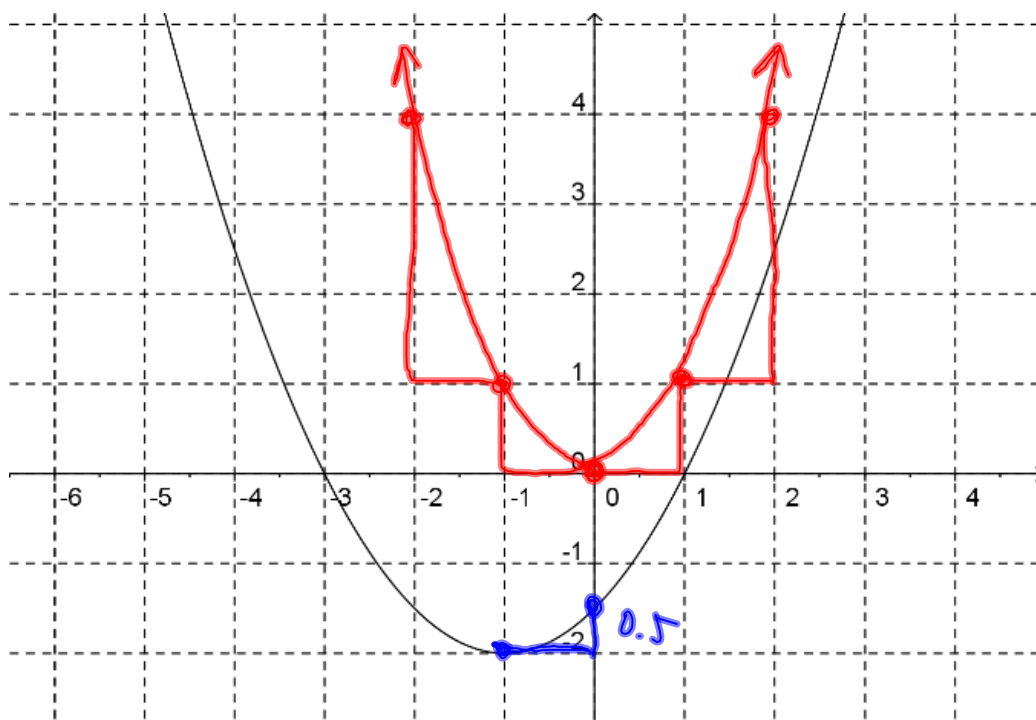
↑
↑  
 Slope      y-int



$$y = \frac{2}{3}x - 5$$

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From your worksheet - a Quadratic Relation



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Properties:

axis of symmetry  
 $x = -1$

minimum value of  $-2$   
 vertex  $(-1, -2)$   
 $x$     $y$

zeros at  $x = -3$  and  $x = 1$   
 roots

Transformations:  
 horizontal  $-1$  / left by 1  
 vertical  $-2$  / down by 2  
 vertically compressed by  $\frac{1}{2}$  or 2  
 discuss in detail later

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Equation:

3 equations

- standard form  $y = ax^2 + bx + c$   
 - factored form  $y = a(x-s)(x-t)$   
 - vertex form  $y = a(x-h)^2 + k$

① vertex form  
 vertex  $(-1, -2)$   
 $h$     $k$   
 $y = a(x - (-1))^2 + (-2)$   
 $y = a(x + 1)^2 - 2$

Sub any point except vertex  $(1, 0)$   
 $0 = a(1 + 1)^2 - 2$   
 $0 = 4a - 2$   
 $2 = 4a$   
 $\frac{2}{4} = \frac{4a}{4}$   
 $a = \frac{1}{2}$

$\therefore y = \frac{1}{2}(x + 1)^2 - 2$

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② factored form

$$y = a(x-s)(x-t)$$

where  $s$  and  $t$  are the zeroes

zeroes at  $-3$  and  $1$

$$y = a(x+3)(x-1)$$

sub any point (not a zero)

vertex is  $(-1, -2)$

$$-2 = a(-1+3)(-1-1)$$

$$-2 = a(2)(-2)$$

$$-2 = -4a \quad \therefore y = \frac{1}{2}(x+3)(x-1)$$

$$a = \frac{1}{2}$$

Feb 1-11:29 AM