

$(-3, -1)$

$(0, 0)$

$(3, -1)$

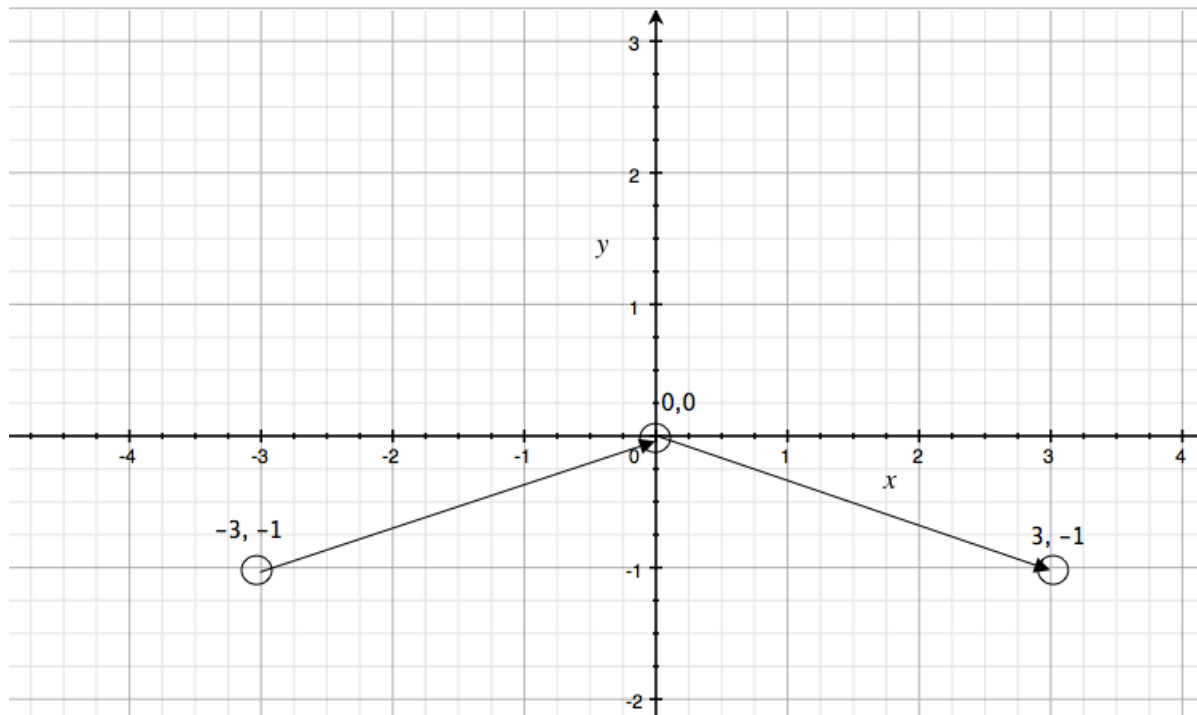
Considering concavity in all quadratic cases is a constant, I think I can just say the slope at each midpoint of point 1 and 2 and point 2 and 3 is equal to the average slope.

We can infer the slopes at the points given by using the discovered concavity and the already inferred points' slopes. So,

Points	Slopes	Concavity
$(-3, -1)$	$(-1.5, 1/3)$	$-2/9$
$(0, 0)$	$(1.5, -1/3)$	
$(3, -1)$		



Point	Slope	Concavity
$(-3, -1)$	$2/3$	$-2/9$



Because we know concavity and we know the slope at  $(-1.5)$ , we can subtract  $-2/9$ th from the slope  $(1/3)$  for each unit  $(1.5)$  because there is a distance of  $1.5$  units between the point whose slope we're trying to find and the point whose slope we have.

It seems like we can use any combination of points to determine slopes, so from  $-3$  to  $3$  in this instance would be  $0$ . Because we know concavity is constant, we can say that the slope is  $0$  at the midpoint or  $f'(0)=0$

Point	Slope	Concavity
(-3, -1)	2/3	-2/9

$$f'(x) = 2ax + b$$

$$f(x) = ax^2 + bx + c$$

$$-1 = a(-3)^2 + b(-3) + c$$

$$c = 0$$

$$2/3 = 2(-3)a + b$$

$$0 = b$$

$$-2/9 = 2a$$

$$-1/9 = a$$

$$c = 0$$

$$c = 0$$

$$0 = b$$

$$0 = b$$

$$b = -2(\text{one.getx})^*a + \text{slopeatone}$$

$$c = -a * (\text{one.getX} * \text{one.getX}) - b * \text{one.getX} - \text{one.getY}$$