Tangent Lines

Math w/ Nick

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Welcome!

Math w/ Mak →

Tangent Lines

$$y = mx + b$$

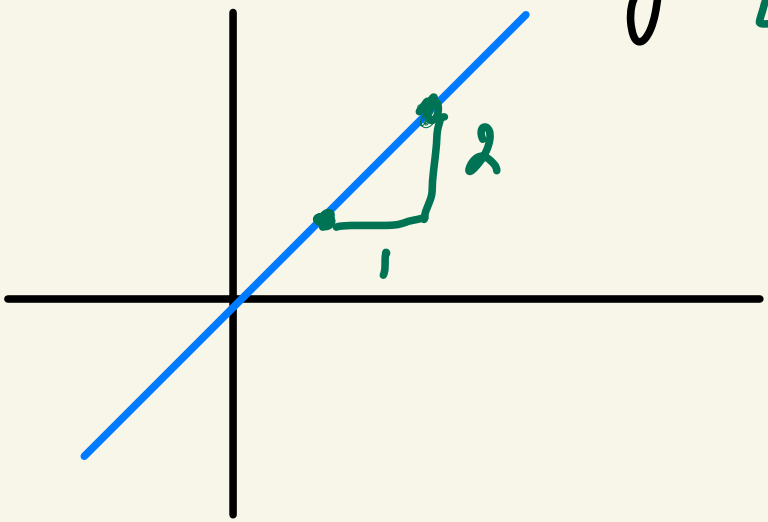
$m \Rightarrow$ slope

$b \Rightarrow$ y-intercept

$$y(x)$$

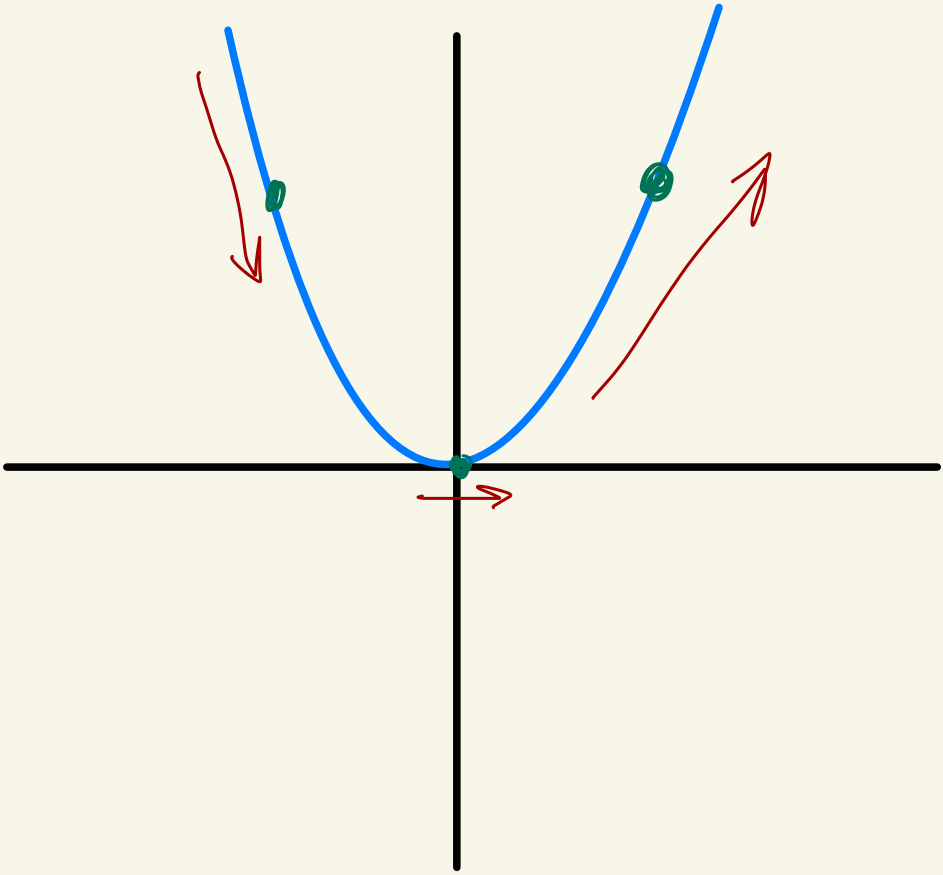
$$f(x) = mx + b$$

$y = 2x + 0$



$y = 2x$

$y' = 2$



$y = x^2$

$y = 2x$

tangent line

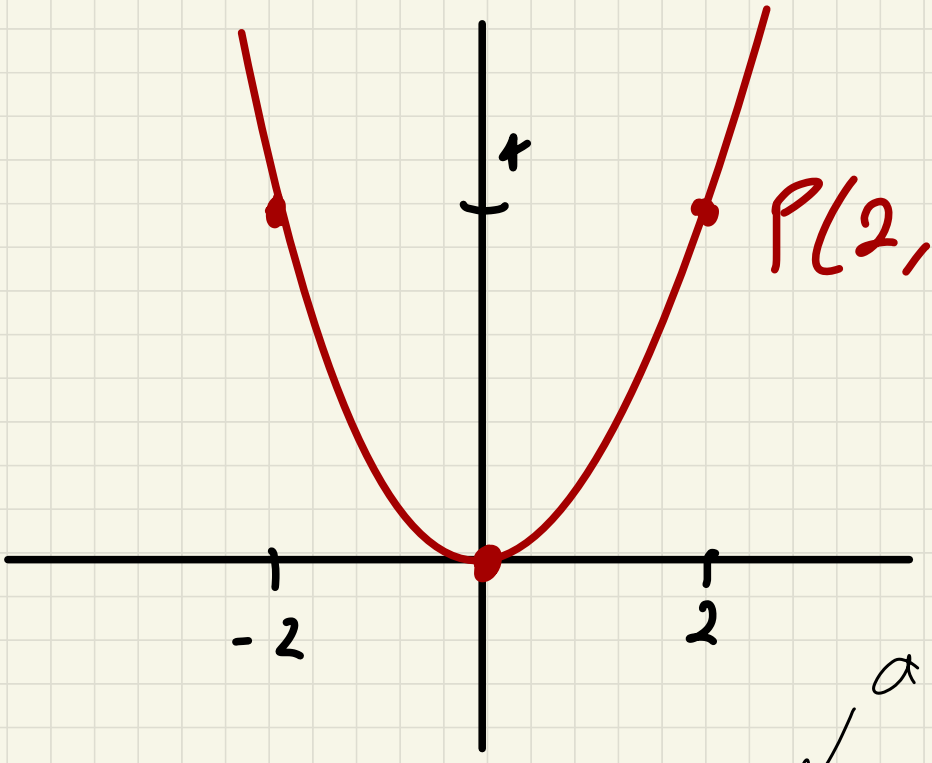
$$y_{tan} = f'(a)(x-a) + f(a)$$

$f'(a)$: Slope at Point P

x

b

$y = x^2$



$y = x^2$, $x = 2$ a

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1) Slope of $y(x)$

$y(x) = x^2$

$y'(x) = 2x$

$y = x^2$, $x = 2$ ← a

1) Slope of $y(x)$

$y(x) = x^2$

$y'(x) = 2x$

2) at Given Point

$y(2) = 4$ ← b

$y'(2) = 2 \cdot 2 = 4$

← Slope

3) Plug in

$y_{tan} = 4(x-2) + 4$

$y = x^2$, $x = 1$

a

$y' = 2x$

$y(a) = 1$

$y'(a) = 2$

$y_{tan} = 2(x-1) + 1$

$$y = x^2$$

$$y = x^2 + 7$$

$$y = x^2 + 1100$$

$$y = x^2 + 1$$

$$\Rightarrow y' = 2x$$

$$y = x^2 + 4 \quad , \quad x = 2$$

$$y' = 2x$$

$$y(a) = 8$$

$$y'(a) = 4$$

$$y_{tan} = 4(x-2) + 8$$