

$f(x)$ is a differentiable function. $f(3) = 4$ and $f'(3) = -2$. slope
Using the tangent line, approximate the value of $f(3.1)$.

$$y - 4 = -2(x - 3)$$

$$y - 4 = -2(3.1 - 3)$$

$$y - 4 = -2(0.1)$$

$$y = 3.8$$

When you see.....

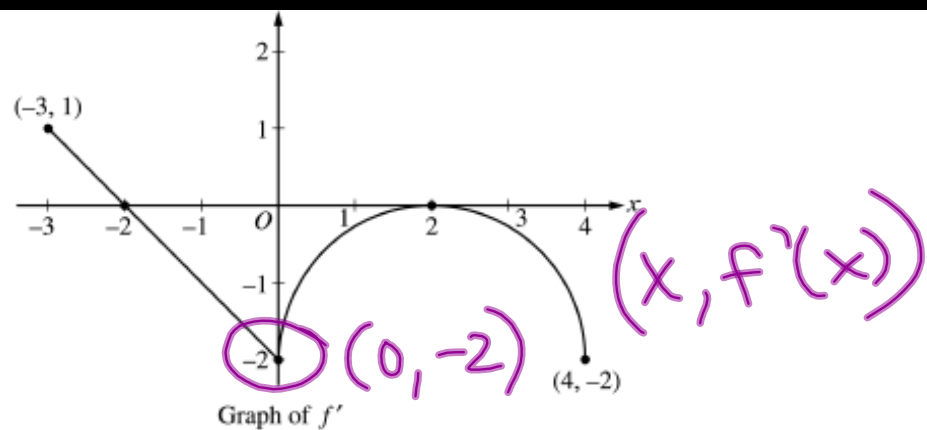
derivative

normal

Think this....

slope

tangent line



4. Let f be a function defined on the closed interval $-3 \leq x \leq 4$ with $f(0) = 3$. The graph of f' , the derivative of f , consists of one line segment and a semicircle, as shown above.

(c) Find an equation for the line tangent to the graph of f at the point $(0, 3)$.

$$y = -2x + 3$$

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Using the chart below, find $f'(5)$ if $f(x)$ is given by: Show necessary work. (4 pts each)

$g(5)$	$g'(5)$	$h(5)$	$h'(5)$
2	8	$-\frac{1}{2}$	3

21. $f(x) = \frac{h(x)}{2g(x)}$

22. $f(x) = g(x)[g(x) + h(x)]$

$$f'(x) = \frac{2g \cdot h' - h(2g'(x))}{[2g(x)]^2} = \frac{2(gh' - hg')}{4g^2}$$

$$f(x) = \frac{1}{2} \left(\frac{h}{g} \right)$$

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Stu Schwartz

$$f = g(g+h)$$

$$f' = g(g' + h') + (g+h)g'$$