3. An equation for the line tangent to the graph of the differentiable function f at $x = 2$ is $y = 9x - 12$. Which of the following statements must be true?

1. $f(0) = -12$
2. $f(2) = 6$
3. $f'(2) = 9$

(A) None

(B) I and II only

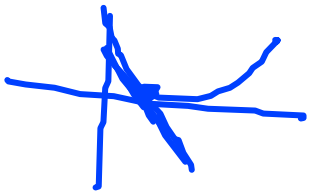
(C) II and III only

(D) I, II, and III

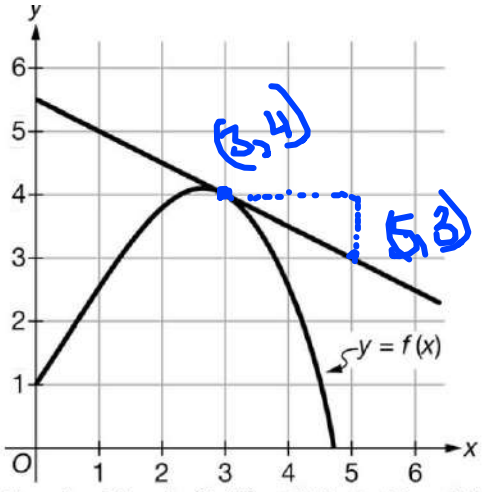
$y = mx + b$ → slope

The slope at $x = 2$ is 9

Since $y = 9x - 12$ is the tangent to the curve at $x = 2$, the value of f at $x = 2$ must be equal to the tangent line at $x = 2$



5.



Shown above is the graph of the differentiable function f along with the line tangent to the graph of f at $x = 3$. What is the value of $f'(3)$?

$\frac{\Delta y}{\Delta x}$

$\frac{3-4}{5-3} = \frac{-1}{2}$

(A) $-\frac{1}{2}$

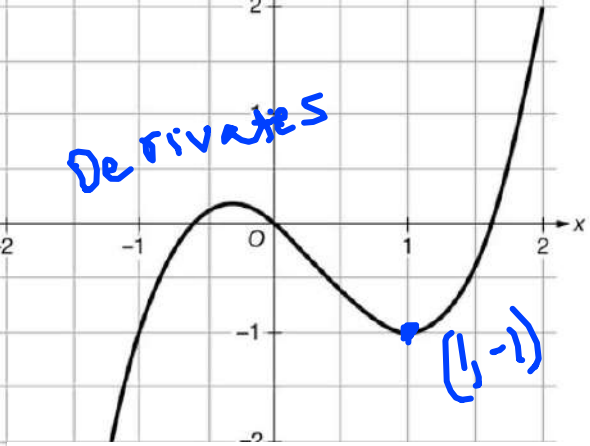
(B) -2

(C) 4

(D) $\frac{11}{2}$

slope of tangent line

$f'(3) = -\frac{1}{2}$



Graph of f'

Let f be a differentiable function with $f(1) = -2$. The graph of f', the derivative of f, is shown above.
Which of the following statements is true about the line tangent to the graph of f at $x = 1$?

(A) The tangent line has slope -1 and passes through the point $(1, -2)$.

(B) The tangent line has slope -1 and passes through the point $(1, -1)$.

(C) The tangent line has slope 0 and passes through the point $(1, -2)$.

(D) The tangent line has slope 0 and passes through the point $(1, -1)$.

The slope of the line tangent to the graph of f at $x=1$ is given by $f'(1)$.

From the graph $f'(1) = -1$. Because $f(1) = -2$ the tangent pass through $(1,-2)$