

Let $f(x) = x^2 - x$

1. Use the definition of the derivative to find $f'(3)$
2. Write the equation of the line tangent to the graph $y = f(x)$ at $x = 3$
Verify your answer by graphing $f(x)$ and your line on the same set of axes

3. Use the definition of the derivative to find an expression for $f'(x)$

i.e. Find $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$

Verify your answer by graphing $f(x)$ and $f'(x)$ on the same set of axes

4. Use your answer to #3 to find the equation of the line tangent to $y = f(x)$ at $x = -2$. Verify your answer with a plot