Let $f(x) = -3x^2 + 9x$

1. Graph $y = f(x)$. Do you think $f'(1)$ be positive or negative? How about $f'(2)$?

2. Use the definition of the derivative to find $f'(1)$

3. Write the equation of the tangent line $y = f(x)$ at $x = 1$

4. Find an expression for the derivative function $f'(x)$

5. What is $f'(2)$? Does this agree with your answer to #1?

6. Graph $y = f(x)$ and $y = f'(x)$ on the same set of axes. Does this make sense?