3.1 Derivative of Tangent Lines

Find the equation of the tangent line to the graph of $f(x) = x^2 - x + 1$ at $x = 2$.
⊞ Then, use your graphing calculator to graph $f(x)$ and the tangent line.

1. Use the definition of the derivative to find $f'(x)$ of $f(x) = x^2 + 2x + 1$ at (-3,4).

2. Use the alternate form of the derivative to find $f'(x)$ of $f(x) = x^2 - 3x$ at $x = 1$.

3. If $y = \dfrac{1}{x+3}$, then find $\dfrac{dy}{dx}$.

4. Find $\dfrac{d}{dx}\left(3x^2 - 5\right)$.

5. Find the equation of the line tangent to the graph of $f(x) = x^2 + 1$ at the point $(1, 2)$