

## 6-1 Derivatives and Slopes of Tangent lines

Name \_\_\_\_\_

**Calculate the derivative of each function.**

\_\_\_\_\_ 1.  $f(x) = 3x^2 + 5x - 2$

\_\_\_\_\_ 2.  $f(x) = -4x^3 + 5$

\_\_\_\_\_ 3.  $f(x) = 3x^3 + 5x^2 - 2x$

\_\_\_\_\_ 4.  $f(x) = -x^5$

\_\_\_\_\_ 5.  $f(x) = \frac{x^2}{2} + 3x$

\_\_\_\_\_ 6.  $f(x) = -7x^{10} + 5x^4 - 5x^2 + 7x$

\_\_\_\_\_ 7.  $f(x) = 3x^{-3} + 5x^{-1} - 11$

\_\_\_\_\_ 8.  $f(x) = \frac{6}{x}$

\_\_\_\_\_ 9.  $f(x) = \frac{3}{x^2} + \frac{2}{x} - 1$

**Find the slope of the line tangent to the graph of the given function at the given point.**

\_\_\_\_\_ 10.  $f(x) = 3x^2 + 5x - 2$  at the point (2, 20).

\_\_\_\_\_ 11.  $f(x) = -x^2 + 1$  at the point (4, -15).

\_\_\_\_\_ 12.  $f(x) = x^4 + 5x^2 - 1$  at the point (1, 5).

\_\_\_\_\_ 13.  $f(x) = x^{-5}$  at the point (1, 1).

\_\_\_\_\_ 14.  $f(x) = \frac{6}{x}$  at the point (2, 3).