

WORKSHEET 3.2-2**Find the derivative of each of the following.**

1) $y = (3x + 4)(2x - 5)$

2) $y = x^2(x + 5 + \frac{1}{x})$

3) $y = (x - 1)(x^2 + x + 1)$

4) $y = (x^3 - 7)(2x^2 + 3)$

5) $y = (2x^2 + 3x + 1)(x - 1)$

6) $y = x^{1/2}(x^2 + x - 4)$

Find all derivatives of each of the following.

7) $y = \frac{x^6}{6} + \frac{2}{3}x^3 + x - 1$

8) $y = (x^2 + 3)(x + 2)$

Complete the following problems.

- 9) Find the equation of the tangent to $y = 3x^2 - 2x + 1$ at the point where $x = 1$.
- 10) Find the equation of the tangent to the graph of $y = (x + 3)(x - 1)$ at $x = 2$.
- 11) Where does the graph of the equation $y = x^3 + 6x^2 + 9x + 1$ have horizontal tangent lines? What are the equations of the horizontal tangents?
- 12) Find the equation of the line perpendicular to the tangent of $y = x^2 + 4x - 1$ at $x = 1$.