Section 2.2 Derivatives of Products and Quotients (Minimum Homework: all odds)

#1-12: Use the product rule to find the derivatives of the following.

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

2) $y = (3x - 4)(5x - 8)$

3) $f(x) = (x - 2)(3x - 4)$

4) $y = (x - 5)(3x^2 + 7)$

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

6) $f(x) = (3x^2 + 6x - 2)(4x + 1)$

7) $g(t) = (2t - 1)(3t + 5)$

8) $g(t) = (3t^2 + 5t)(2t + 1)$

9) $y = 3x^2(2x^2 + 6x - 4)$

10) $y = 4x^3(3x^2 + 7x - 5)$

11) $y = (3x^4)(5x^2 + 7)$

12) $y = (2x^5)(5x - 8)$

#13-20: Use the quotient rule to find the derivative of the following.

13) $f(x) = \frac{6}{5x+1}$

14) $g(x) = \frac{4}{3x+11}$

15) $y = \frac{9x}{x-5}$

16) $y = \frac{12x}{5x-6}$

17) $y = \frac{3t+1}{2t+5}$

18) $y = \frac{2t+3}{4t+5}$

19) $g(x) = \frac{x^2}{x-4}$

20) $g(x) = \frac{x^2}{x-2}$

#21-26:

a) Find the slope of the tangent line to the graph of the function for the given value of x (or t).

b) Find the equation of the tangent line to the graph of the function for the given value of x (or t).

21) $y = (2x + 3)(3x - 4);\ x = 2$

22) $y = (3x - 4)(5x - 8);$ x = 3

23) $g(t) = (2t - 1)(3t + 5)$;t = 4

24) $g(t) = (3t^2 + 5t)(2t + 1); t = -2$

25) $f(x) = \frac{6}{5x+1}$; $x = 1$

26) $g(x) = \frac{4}{3x+11}; x = -3$