Derivative Practice (Section 3.3)

1. $f(x) = x - x^5$

2. $f(x) = (x^2 - 1)(2 - x)$

3. $f(x) = (3x^2 - 8x)(x^2 + 2)$

4. $f(x) = (x^2 + x + 1)(x + 1)$

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

6. $f(x) = \dfrac{6}{3-x}$

7. $f(x) = \dfrac{x^4 + 4x + 4}{1 - x^2}$

8. $f(x) = \dfrac{(2x+1)(3x+2)}{(x+1)(x-1)}$

9. $f(x) = 5x^{-2} - 2x^{-5}$

10. $f(x) = \dfrac{x^2 - 4}{x+2}$

11. $f(x) = (x-2)(x+\dfrac{1}{x})$

12. $f(x) = \dfrac{x}{x^2 + x + 1}$

13. $f(x) = (x^5 + x^{-2})(x^3 - x^{-7})$

Find an equation for the line tangent to the graph of the given function at the given point.

14. $f(x) = \dfrac{x-1}{x+1}$ *at the point (1,0)*

15. $f(x) = (x^2 + x)(1 - x^2)$ *at the point* ~~(3,-43)~~ $\left(2, -18\right)$