1. Differentiate
2. Y = 3x + $π^{3}$
3. Y = 1 / (x-3)^3
4. y = (x^4 – x)^3 (3x + 2)^4
5. Y = (1 + x - x^3)^4
6. Compute the following limits.
7. $\lim\_{x\to \infty }\frac{x-2}{\begin{array}{c}x^{2}+2\\\end{array}}^{}$
8. $\lim\_{x\to \infty }\frac{3x^{5}- 6x^{4}+ 2x-6}{7x^{5}- 2x^{2}+ 10,000}$
9. Use limits to compute f”(3) where f (x) = x^2 – 2x +3.
10. a. What is the average rate of change of f(x) given f(x) = -6/x from [1,2] and [1,4].

b. What is the instantaneous rate of change of f(x) when x = 1.

1. Write the equation of the tangent line to the curve y = x^3 – 2x^2 +5 at x = 2.