Lesson 2.5 – Linear Approximation

1. (a) Find the equation of the tangent line to the graph of $f(x) = 2x^3 - 5x^2$ at $x = 2$.
   (b) Use the tangent line to estimate $f(2.1)$. How close are you to the actual value?
2. A beaker with radius r inches is filled with acid to a height of 4 inches. The radius of the beaker is measured to be 2 inches with a possible error in measurement of ± 0.08 inches. Estimate the propagated and relative errors in the calculated volume of acid in the beaker. (Hint: The volume of a right circular cylinder of height 4 is $V = 4\pi r^2$.)