Books and notes (in any form) are not allowed. You may use the given calculator. *But you must show your set up and work for full credit.* Good Luck!

1. (5 pts) Given the implicity defined curve $\cos y = y + xy^2 + x$,

(a). Find the derivative y'.

(b). Find an equation for the tangent line to the following implicitly defined curve at the point $(1, 0)$.

2. (5 pts) If a rock is thrown vertically upward from the surface of Mars with a velocity of 16 m/s, its height after t seconds is given by

$$h(t) = 16t - 1.86t^2$$

(a). What is the velocity of the rock after 2 s?

(b). What is the velocity of the rock when its height is 20 m on its way down?

3. (5 pts) Given $f(x) = \dfrac{1}{(1-x)^3} = (1-x)^{-3}$,

(a). Find the linearization $L(x)$ at $x = 0$.

(b). Use the linearization from part (a) to approximate $\dfrac{1}{(0.99)^3}$.   i.e., Use $L(x)$ to approximate $f(0.01)$.