

Group Work 1 - Math 165

Names: _____

Turn in one copy of your work and answers with all names of the group members on it. Show all work to receive maximum credit for each problem. Please show your work on another sheet and write **only** the answers on this sheet. You may not use your book or consult with other groups, but you may use your notes and calculator. This exercise counts as one quiz score.

1. (3 pts.) Use the **definition** of the derivative to evaluate the derivative of the function $f(x) = \frac{1}{x^2}$ at the point $x = 2$.

2. (3 pts.) A ball rolls down an inclined plane such that the distance (in centimeters) that it rolls in t seconds is given by $s(t) = 2t^3 + 3t^2 + 4$, for t between 0 and 3 seconds.

a) Find the instantaneous velocity of the ball at $t = 2$ seconds.

b) At what time is the velocity 12 cm/s?

3. (2 pts.) Find the derivative of the function $g(x) = \frac{(x^2 - 1)(3x^2 + x + 1)}{(x^3 + 2)}$.

4. (2 pts.) Find the **equation** of the tangent line to the curve $y = (x^2 - 7x + 1)(x^3 + 2x + 1)$ at the point when $x = 1$.