ECO137 Quiz 3 Dec. 24, 2018   ID _____; Name_____

1. For $y = x^3 e^{-2x}$, find the interval where f is increasing.

2. For $y = 5x - 10\ln(x^2 + 2)$, find the interval where f is increasing.

3. $f(x) = g(u(x))$, u and g functions are both decreasing and convex. Find if f(x) is increasing/decreasing and convex/concave. Clearly show your logic.

4. For $e^{-2x}(y + 2) + x^3 y^2 = x + 5$, find the f' by using implicit differentiation. Evaluate y' at (0, 1).

5. Find linear approximation to $(x + 1)^4$ about x=0. Evaluate the size of error at x=0.01.