Practice Test 4
BUSA130

This exam is graded out of 15 points. You must do Problems 1 and 2. You may choose 5 of the remaining 6 problems.

1) For how much time (in years) must you invest an initial amount to see it triple if you are able to secure an annual interest rate of 7.2%, compounded weekly? (2.5pts)

2) Calculate the annual interest rate, compounded monthly, you earned if you bought a house on 1 July 2007 for $120000 and sold it on 1 January 2015 for $178000. (2.5pts).

3) Find the derivative of $f(x) = e^{-x^2} + 2\ln(x^2 + 1)$. (2pts).

4) On what intervals is the function $f(x) = e^{0.5x^2 - x}$ increasing? Decreasing? (2pts)

5) Jackson Tire Manufacturing has determined that their daily marginal cost of producing tires is (in dollars) $C'(x) = 0.0015x^2 - 0.06x + 10$. They also know that their daily fixed cost is \$500. Find their total daily cost if they make 150 tires per day. (2pts)

6) Use logarithmic differentiation to find the derivative of $f(x) = x^3 e^{-x^3}$. (2pts)

7) Calculate the indefinite integral $\int e^{-2x+1}\, dx$. (2pts)

8) Use right endpoints and 5 subintervals to approximate the area under the curve $f(x) = \frac{1}{x+1}$ on the interval [1,2]. (2pts)

Bonus: There will be a bonus question worth 0.5pts.