Math 1743 - Math Center Worksheet
Section 3.2

1. Find the derivatives of the following functions:
   You do not need to simplify your answers.

a. $y = 2e^x$

b. $f(x) = \left(\dfrac{5}{3}\right)^x$

c. $S(p) = 4\ln 9 - \dfrac{7}{p}$

2. Find the rate of change formulas for the following models:

a. $f(t) = 0.908(0.923^t)$ percentage of traffic accidents investigated by OSHP that were fatal, t years after 1991.

b. $f(x) = 4.741 + 1.092\ln x$ the percentage of US rental-housing units vacant during the third quarter, x years after 1977.

Math 1743 - Math Center Worksheet
Section 3.4

1. Find the derivatives of the following functions:
   You do not need to simplify your answers.

a. $y = 2e^{7x}$

b. $f(x) = \left(\dfrac{5}{3}\right)^{1-x^4}$

c. $S(p) = 4\ln\left(72p^{21} + 6\right)$

2. Given the model $h(w) = \dfrac{10111.102}{1+1153.222e^{-0.0728w}}$ cumulative labor hours spent on the construction job, w weeks after the project begins.

a. Find the rate of change formulas for the model.

b. Find and interpret $h'(10)$.

Math 1743 - Math Center Worksheet
Section 3.6

1. Find the derivatives of the following functions:
   You do not need to simplify your answers.

a. $y = 61x^{33} \cdot \ln x$

b. $h(x) = \dfrac{9 - \sqrt{8x}}{3^{1-x}}$

2. Given the model $R(p) = 82.549p\left(0.945^p\right)$ thousand dollars revenue when price per ticket is p dollars.

a. Find the rate of change formulas for the model.
b. Find and interpret $R'(37.75)$.