

Name:

Section 3.3 In class examples

Math 151 – Spring 2018

Section 3.3

1. Find the derivative of each of the following functions

(a)  $f(t) = (t^2 + 1)^{100}$

(b)  $f(t) = 6e^{5t} + e^{-t^2}$

2. Find the relative rate of change  $\frac{f'(t)}{f(t)}$  for  $f(t) = \ln(t^2 + 1)$  at  $t = 2$ .

3. If you invest  $P$  dollars in a bank account at an annual interest rate of  $r\%$ , then after  $t$  years you will have  $B$  dollars, where

$$B = P \left( 1 + \frac{r}{100} \right)^t$$

(a) Find  $\frac{dB}{dt}$ , assuming  $P$  and  $r$  are constant. In terms of money, what does  $\frac{dB}{dt}$  represent?

(b) Find  $\frac{dB}{dr}$ , assuming  $P$  and  $t$  are constant. In terms of money, what does  $\frac{dB}{dr}$  represent?