

Name:

Section 3.2 - In class example

Math 151 – Spring 2019

1. Differentiate each of the following functions

(a) $P = 200e^{-12t}$

(b) $P(t) = 3000(1.02)^t$.

2. The value of an automobile purchased in 2009 can be approximated by the function $V(t) = 25(0.85)^t$, where t is the time, in years, from the date of purchase, and $V(t)$ is the value, in thousands of dollars.

(a) Evaluate and interpret $V(4)$, including units.

(b) Find an expression for $V'(t)$, including units.

(c) Evaluate and interpret $V'(4)$, including units.

Compositions of functions

1. Let $f(t) = \ln(t)$ and $g(t) = 3t$. Write down the compositions $f(g(t))$ and $g(f(t))$.

2. Each of the following functions are compositions of the form $f(g(x))$. Identify $f(x)$ and $g(x)$.

(a) $\sqrt{1 + 2e^{5t}}$

(b) $(x^2 + 4)^3$