

Homework 8

Math 147, Fall 2017

This homework is due on Thursday, October 19.

0. Read Sections 4.6 and 4.7

1. (a) What is the derivative of

$$y = 3^{x \sin x}$$

at $x = \pi$?

(b) What is the *second derivative* of

$$y = \ln(1 - x)$$

at $x = -1$?

(c) Does

$$y = \cos(-x)$$

satisfy the differential equation $y = y''$? Explain.

(d) What is the derivative of the *inverse* of

$$y = x + \ln x$$

at $x = e + 1$?

2. Section 4.6 # 14, 38, 60, 68

3. Section 4.7 # 4, 10, 20, 38, 58, 70

4. The radius of a spherical tumor is expanding at a constant rate of k millimeters per year. What is the growth rate of the volume when the radius is 10 millimeters?

5. (These problems are *not* to be turned in!)

(a) Section 4.6 # 5, 13, 25, 53, 59, 61, 69, 71

(b) Section 4.7 # 5, 9, 13, 22, 33, 39, 45, 53, 65, 73, 75