

Math 101 - Homework 7

Due Friday October 18

1. Sketch the curves described in (a) - (c). (2.5 #18)
 - (a) Slope is positive and increasing at first, but then is positive and decreasing.
 - (b) The first derivative of the function whose graph is in part (a).
 - (c) The second derivative of the function whose graph is in part (a).
 - See example 2 on p117.
 - Further practice: 2.5 # 19, 21, 23.
2. With a yearly inflation rate of 2%, prices are given by

$$P = P_0(1.02)^t$$

where P_0 is the price in dollars when $t = 0$ and t is time in years. Suppose $P_0 = 1$. How fast in cents/year are prices rising when $t = 10$? (3.2 #42)

- See example 2 on p142.
 - Further practice: 3.2 # 41, 43, 44.
3. Find the derivative of $f(x) = (x^2 - \sqrt{x})3^x$. (3.3 #7)
 - See example 1b on p146.
 - Further practice: 3.3 # 8 - 12.
 4. Find the derivative of $g(t) = \frac{4}{3+\sqrt{t}}$. (3.3 #20)
 - See example 2a on p147.
 - Further practice: 3.3 # 17 - 21.