

**Resources for help:**

- My office hours are 11-12 Monday through Friday in my office, 120 Sc.
- Our TA, Eric, attends class and is also in the tutoring center 12-1 MWF.
- Calculator question & answer sessions are Wednesdays 4-6 in 178c of the Sharwin Smith Center and are given by Alisha McCann.
- The tutoring center in the Student Success Center in the Sharwin Smith Center has math tutors available
  - Monday-Thursday, 8am-10pm
  - Friday 8am-6pm
  - Saturday 2pm-6pm
  - Sunday 6pm-9pm

**Remember to label!** (You've been doing this very well--great job!)

Announcements: I will be out of town on Friday, March 23. Our TA, Eric, will give the lecture that day. I also will be unavailable for office hour on Tuesday, April 3.

**Hw 5.1:**

pg 275-277: 1,4,5,7,10,14,23,26

- A. Sales decay after advertising is stopped can be modeled by  $y = Ce^{kt}$ , where  $t$  is time and  $y$  is the level of sales.
- What is  $C$ ?
  - What is the sign of  $k$ ?
  - What is the long term behavior?

**Hw 5.2:**

A. Identify what each variable in the formula  $A = Pe^{rt}$  represents.

B. A bank account with an initial deposit of \$1 at 100% interest compounded  $x$  times per year contains

$\left(1 + \frac{1}{x}\right)^x$  dollars after 1 year. Evaluate the expression for interest compounded quarterly, monthly, daily (use 360 for the number of days in a year), a thousand times a year, and a million times a year. What do you notice?

C. What is meant by present value? future value?

pg 283-284: 2,6,7,9,12,14,15,18,21,23,27,28

D. Consider the effect of increasing the interest rate by 1% in problem 28. Does going from 3% to 4% have the same effect as going from 11% to 12%? Explain.

**Hw 5.3:**

A. Give the formula for percent rate of change.

B. What information does the percent rate of change give us that just the rate of change does not?

pg 293: 3,8,10

C. In the demand equation  $q = f(p)$ , what do  $q$  and  $p$  represent?

D. Elasticity involves the ratio of the \_\_\_\_\_ to the

\_\_\_\_\_.

E. Demand is inelastic if the elasticity is \_\_\_\_ 1.

F. If demand is elastic, how do changes in price relate to changes in revenue?

pg 293-294: 14,15,20,23,24,27-29

**Hw 5.4:**

A. What does the equation  $f'(t) = k[M - f(t)]$  mean? Give the big picture.

B. What does the equation  $y' = ky(M - y)$  mean? Give the big picture.

pg 303: 1,4,6

C. Referring to #6, initially how much is remembered? How much is remembered in the long run?

pg 303-305: 7,11,12,14

D. Read pg 300 and the top of pg 301 carefully. Put a check to show you did it.

E. Suppose a highly contagious disease brought by 2 people returning from vacation is beginning to spread throughout a community of 100,000 people, and the situation satisfies the conditions given on pg 300. Unfortunately, two weeks into the epidemic, medicine is in short supply. More medicine has been ordered but won't arrive for two more weeks. A health official assures people not to worry, explaining that since 50 people got the disease in the first two weeks, there will only be 100 (50 more) infected people after four weeks.

a. What is the flaw in the official's reasoning?

b. The equation  $f(t) = \frac{100,000}{1 + 49,999e^{-1.61t}}$  where  $f(t)$  is the cumulative number of infected people after  $t$  weeks is a model of the situation. About how many will be infected after four weeks?

**Hw 6.1:**

A. How does the graph of  $y = f(x) + C$  compare to the graph of  $y = f(x)$ ?

B. Why would  $y = f(x)$  and  $y = f(x) + C$  have the same derivatives? Give at least two reasons.

C. What does the notation  $\int f(x) dx$  represent? How is it read?

pg 315-316: 1-8,10,14-20,23,25,28,31,34,37,39,42,43

D. \_\_\_\_\_ is the antiderivative of velocity.

E. Velocity is the antiderivative of \_\_\_\_\_.

F. Fill in the blanks with *cost* and *marginal cost*.

\_\_\_\_\_ is the antiderivative of \_\_\_\_\_.

pg 317: 46,47,51,52

**Hw 6.3:**

A. What does  $\int_a^b f(x) dx$  represent graphically? Can it ever be negative?

B. How is  $\int_a^b f(x) dx$  read? What is it called?

pg 336-339: 2-5,7-10,14,15,28,33,36,37,39,42-44,47