

**Math 118 - 07**  
**Practice Test – parts of Ch 7 and Ch 11**

Fall 2006

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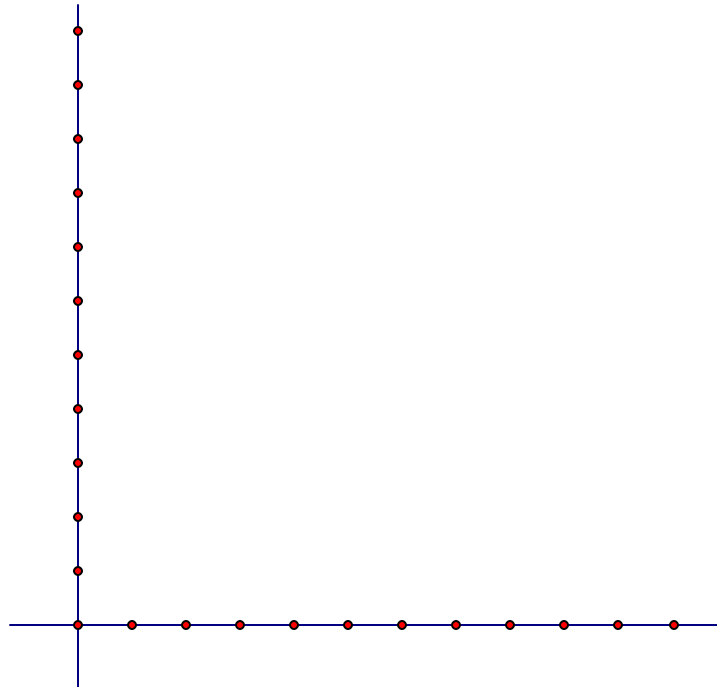
**Rules:** You may use a calculator and a ruler. You may not use your book or your notes. If you need scrap paper, ask the instructor, and hand it in with your test. If you finish early, you may hand in your test and leave.

1. Graph the region and find the corner points

$$\begin{aligned} x + 2y &\leq 8 \\ 2x + y &\leq 10 \\ x + y &\geq 2 \\ x, y &\geq 0 \end{aligned}$$

Corner points (You may have extra spaces. Maybe not.)

x	y
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____



2. **Formulate the problem**

Tire Corral has \$6000 available this month for advertising. Newspaper ads cost \$100 each and can occur a maximum of 21 times per month. Radio ads cost \$300 each and can occur a maximum of 28 times per month at this price. Each newspaper ad reaches 6000 potential customers and each radio ad reaches 8000. The company wants to maximize the number of times potential customers are exposed to one of their advertisements.

Construct a table and formulate the problem. (“Formulate” means to make a resources table, then give all the constraints and the objective function.)

3. Maximize  $f = 3x + 4y$  subject to

$$x + y \leq 6$$

$$2x + y \leq 10$$

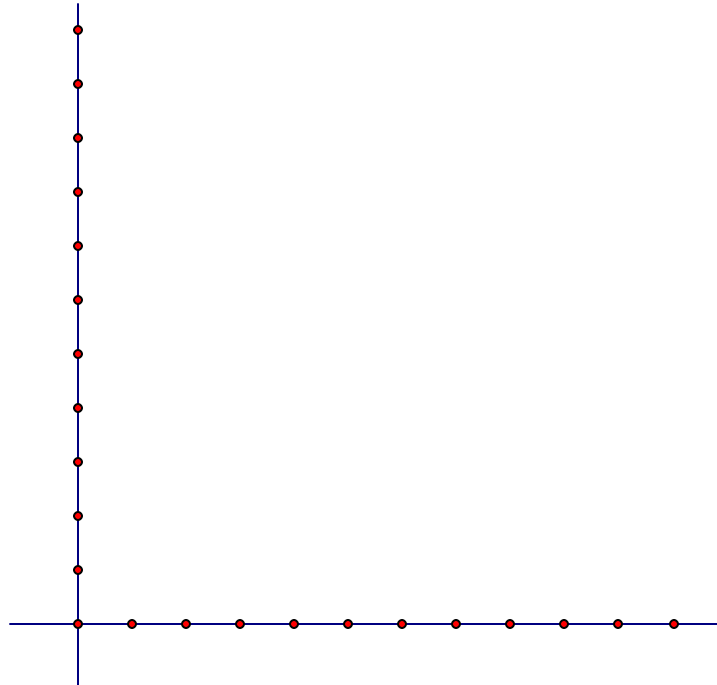
$$y \leq 4$$

$$x, y \geq 0$$

x = \_\_\_\_\_

y = \_\_\_\_\_

f = \_\_\_\_\_



4. Set up, and solve, the following problem.

A company manufactures two types of electric hedge trimmers, one of which is cordless. The cord-type trimmer (x) requires 1.7 hours to make, and the cordless model (y) requires 3.8 hours. The company has only 820 work hours to use in manufacturing each day, and the packing department can package only 316 trimmers per day. If the company sells the cord type model for \$33 and the cordless model for \$42, then how many of each type should it produce to maximize its sales?

Do not forget the nonnegativity constraints.

MAXIMIZE/MINIMIZE (circle one)  $f =$  \_\_\_\_\_

subject to: \_\_\_\_\_

\_\_\_\_\_

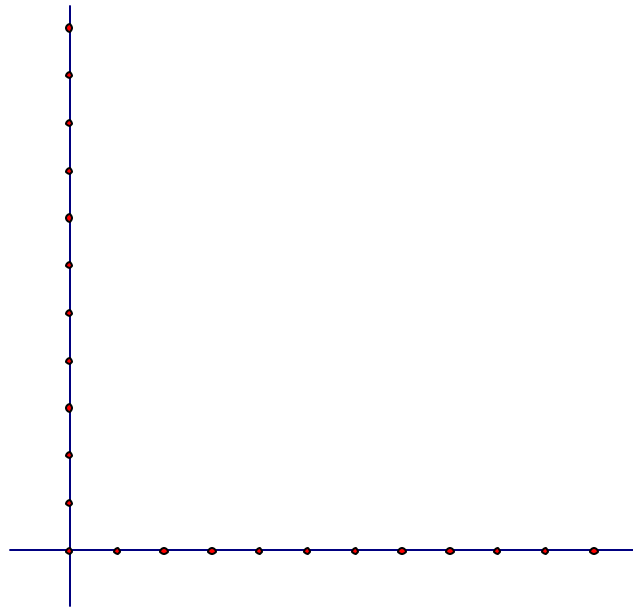
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Make \_\_\_\_\_ cord-types

and \_\_\_\_\_ cordless



5. I took the following price data on IBM stock.

Find the average daily rate of change  
in the price for the interval November 28,  
2005 to April 3, 2006.

\_\_\_\_\_

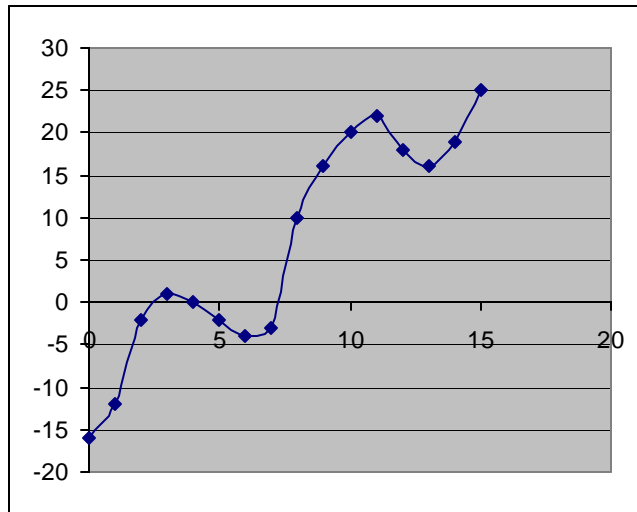
Find the average daily rate of change  
in the price for the interval July 3, 2006 to  
November 27, 2006.

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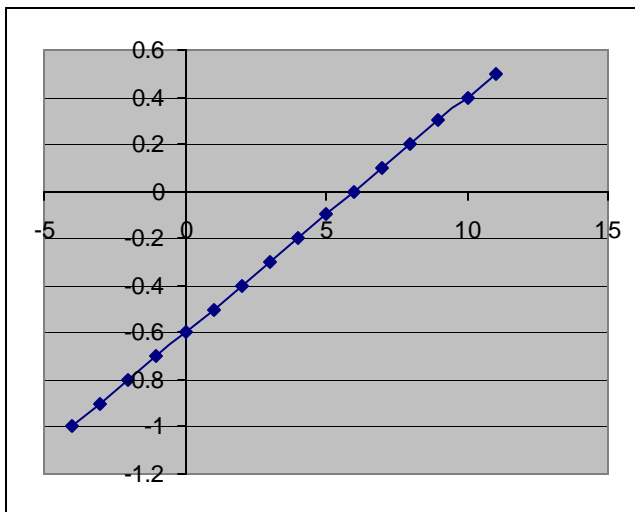
IBM

Date	Price	
11/28/2005	38684	86.12
1/1/2006	38718	85.23
4/3/2006	38810	83.15
7/3/2006	38901	75.87
9/3/2006	38963	85.42
11/27/2006	39048	91.67

6. On the graph below, shade all the parts where the function has a negative derivative.



7. Make the graph of a function that has as its derivative the function shown below:



8. Find the slope of the function  $f(x) = x^3 - 2x^2 + 1$  at  $x = 3$

slope is \_\_\_\_\_

9. Find the equation of the line tangent to  $f(x) = 6 - x^2$  at  $x = -2$ .

line is \_\_\_\_\_