

MONTGOMERY COUNTY COMMUNITY COLLEGE  
MAT 100 -Test #1  
Spring 2005

Graziano

Name \_\_\_\_\_

Make sure you show all work! No credit will be given if no work is shown

1. Simplify each expression using the order of operations. (3pts each)

a.  $\frac{(-5)(-2)^3}{4}$

b.  $4[3 + 2(7 - 4)]$

2. Solve for x: (4 pts each)

a.  $7x - 2(x - 1) = 15 + 3x$

b.  $5x + 3y = H$

3. Find the slope and y-intercept in the line  $4x - 3y = 5$

slope = \_\_\_\_\_ (4 pts)

y-intercept \_\_\_\_\_ (4pts)

4. Given the points  $(3, -5)$   $(8, -9)$ , find the equation of the line joining them. You must leave your answer in slope-intercept form. (5 pts)

5. State whether the two lines below are parallel, perpendicular, or neither. (5 pts)

$$y = 5x + 2$$

$$-\frac{1}{5}x - 5y = 8$$

6. a. Draw the graph of  $5x - 3y = 15$ . (4pts)  
Please show at least 2 points you used to draw the line.

- b. Draw the graph of  $x = 7$   
Its slope is \_\_\_\_\_(4pts)

7. A firm pays \$1820 for rent plus \$115 for every item it manufactures. Let  $x$  be the number of items.

a. Write an expression for the Cost  $C(x)$  of manufacturing  $x$  items.(4 pts)

$$C(x) =$$

b. What does it cost to manufacture 10 items?(4pts)

8. Choose the one alternative that best completes the statement or answers the question. Use a graphing calculator to determine which window best shows the shape of the graph and where it crosses the  $x$ - and  $y$ -axes.(3pts)

$$y = 6x - 12$$

a. [ -20, 20, -20, 20], Xscl = 5, Yscl = 5

b. [ -10, 10, -10, 10], Xscl = 1, Yscl = 1

9. Use the rules for exponents to simplify the following. No negative exponents in the answer.(4pts each)

a.  $(3x^2)(2x^0)$

b.  $(-3x)^2$

c.  $\left(\frac{2x^3y^{-3}}{y^2}\right)^2$

10. Find the equation of the line that is parallel to the graph of  $y = 4x + 8$  and passes through the point  $(5, 3)$ . (5pts)

The equation is \_\_\_\_\_

11. Given:  $F(x) = 3x^2 - 4x + 1$  (4pts each)

Find:

a.  $F(2)$  = \_\_\_\_\_

b.  $F(0)$  = \_\_\_\_\_

12. Go to page 90 in your textbook. do problem #16. DO NOT COPY THE FIGURE.

Enter your answers to a, b, c, d on the lines below. (4 pts each)

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

d. \_\_\_\_\_

13. The following table shows increase in US Healthcare expenditures (in billions of dollars).

<b>Year</b>	<b>Expenditure (in billions)</b>
1998	422.6
1999	454.8
2000	494.1
2001	546
2002	602.8
2003	666.2

Remember to code the years as shown in Example 6 on page 154.

a. Use linear regression to find a linear function that can be used to estimate the sales as a function of  $x$  years since 1998. (5pts)

\_\_\_\_\_

b. Predict the sales in the year 2005. (3pts)

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