

Show all work on the test for partial credit. Each problem is worth 4 points unless otherwise indicated.

1. Evaluate the expression:  $\left(2 - \frac{2}{3}\right)^2 - \left(\frac{1}{3}\right)^2$

2. Evaluate the expression:  $2(-2)^2 - 4(-2 - 1)^2$

3. Evaluate the expression  $-5x^2 - 3x - 2$  for  $x = -3$

Elementary Algebra Test 2

4. Evaluate the expression  $(x^2 - 2)(x^2 + 2)$  for  $x = -2$

5. Distribute and Combine Like Terms:  $-(3 - 2x) - 2(5 - 3x) - 2(-2x + 5)$

6. Distribute and Combine Like Terms:  $-\frac{1}{3}(12x - 9) - \frac{1}{5}(3 - 10x)$

Elementary Algebra Test 2

7. Solve for  $x$ :  $2(x - 1) - 3(x + 1) = 2(x + 11)$

8. Solve for  $x$ :  $\frac{1}{6}\left(\frac{3}{4}x - 2\right) = -\frac{1}{5}$

9. Solve for  $P$ :  $A = P + Prt$

10. Given  $A = P(1 + rt)$ , find  $A$  when  $t = 5$ ,  $r = 0.08$ , and  $P = 250$ .

Elementary Algebra Test 2

11. Translate to a mathematical expression, use  $x$  to represent the number.

- a) Four more than three times a number. \_\_\_\_\_
- b) The difference between a number and six. \_\_\_\_\_
- c) Five times the sum of a six and a number. \_\_\_\_\_
- d) Three less than six times a number. \_\_\_\_\_

12. After a 20% discount, a new DVD player was selling for \$320.00. What was the original price of the DVD player?

13. The second angle of a triangle is three times as large as the first. The third angle measures  $20^\circ$  more than the first angle. What is the measure of each angle?

14. When all  $n$  teams in a league play every other team twice, a total of  $N$  games are played, where

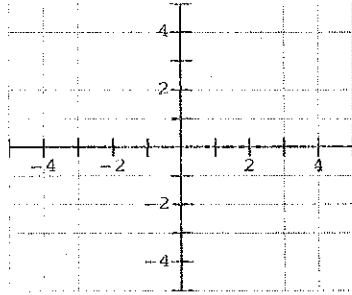
$$N = n^2 - n.$$

If there are 8 teams in a league and they each play every other team twice, how many games are played?

Elementary Algebra Test 2

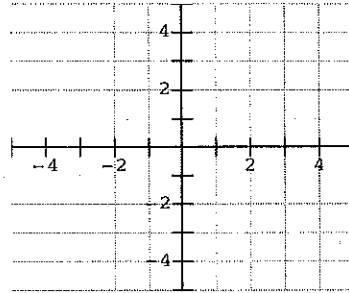
15. Plot the following points and identify the quadrant in which they lie.

a)  $(1, -4)$



Quadrant \_\_\_\_\_

b)  $(-3, -4)$



Quadrant \_\_\_\_\_

16. Determine if the ordered pair is a solution of the equation.

a)  $(3, -3)$   $y = -\frac{2}{3}x - 1$

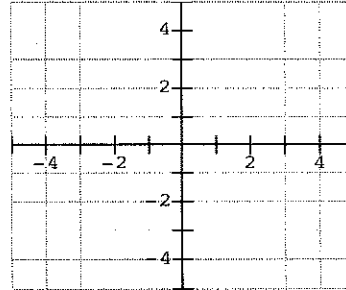
b)  $\left(-\frac{1}{5}, 5\right)$   $y = -5x + 2$

Elementary Algebra Test 2

17. Find the  $x$  and  $y$  intercepts and graph:  $3x + 6y = 12$

$x$ -intercept \_\_\_\_\_

$y$ -intercept \_\_\_\_\_

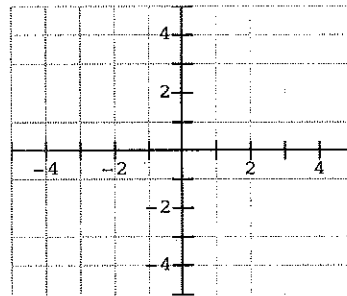


(8 points)

18. Graphing by plotting points. Sketch a graph of the following equations by making a table of values and plotting the points.

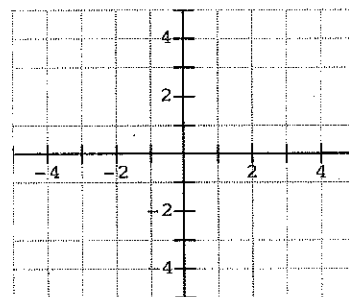
a)  $y = -2x + 4$

$x$	$y$
0	0

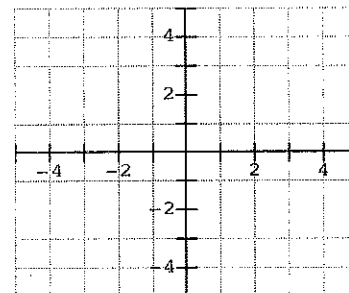


b)  $-3x + 4y = 12$

$x$	$y$
0	0

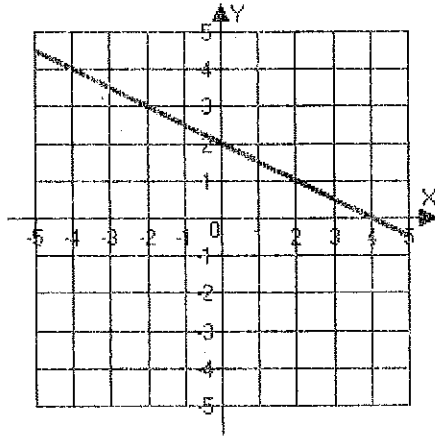


c)  $y = -\frac{1}{2}x + 2$



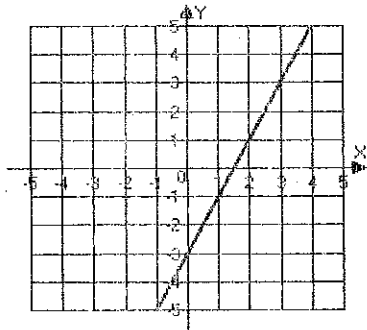
Elementary Algebra Test 2

19. Find the slope of the line whose graph is given below:



m = \_\_\_\_\_

20. Find the slope-intercept equation of the line given below:



The equation is y = \_\_\_\_\_

21. Find the equation of the line that passes through the points (5,-2) and (3,5).

Elementary Algebra Test 2

22. Find an equation of the line parallel to the line  $x + 2y = 4$  that passes through the point  $(-3, 3)$ .

(8 points)

23. Simplify:

a)  $x^5 \cdot x^5$

b)  $\frac{x^{11}}{x^5}$

c)  $\frac{28x^6y^{11}}{12x^5y^8}$

d)  $(-x^2)^2$

24. For the polynomial:  $\frac{5}{2}x^7 + 3x^5 + 2x^3 - 1$ . Find the following:

- a) The leading term \_\_\_\_\_  
b) The leading coefficient \_\_\_\_\_  
c) The degree of the polynomial \_\_\_\_\_

25. Subtract the following polynomials:

$$(-3x^3 - 3x^2 + 4x - 4) - (-2x^3 + 3x^2 - 4x + 5)$$

Name Key

**MATD 0370**  
**Elementary Algebra**  
**Mike Huff**  
**Test 2**  
**Spring 2010**

Deadline: 10/30/2009

Tools: Scrap paper and calculator

Show all work on the test for partial credit. Each problem is worth 4 points unless otherwise indicated.

1. Evaluate the expression:  $\left(2 - \frac{2}{3}\right)^2 - \left(\frac{1}{3}\right)^2$

$$\left(\frac{4}{3} - \frac{2}{3}\right)^2 - \frac{1}{9} = \frac{16}{9} - \frac{1}{9} = \frac{15}{9}$$

$$= \frac{5}{3}$$

2. Evaluate the expression:  $2(-2)^2 - 4(-2 - 1)^2$

$$8 - 36 = -28$$

3. Evaluate the expression  $-5x^2 - 3x - 2$  for  $x = -3$

$$-5(-3)^2 - 3(-3) - 2 =$$

$$-5(9) + 9 - 2 = -38$$

Elementary Algebra Test 2

4. Evaluate the expression  $(x^2 - 2)(x^2 + 2)$  for  $x = -2$

$$\begin{aligned} &((-2)^2 - 2)((-2)^2 + 2) \\ &(2)(6) = \boxed{12} \end{aligned}$$

5. Distribute and Combine Like Terms:  $-(3 - 2x) - 2(5 - 3x) - 2(-2x + 5)$

$$-3 + 2x - 10 + 6x + 4x - 10$$

$$\boxed{12x - 23}$$

6. Distribute and Combine Like Terms:  $-\frac{1}{3}(12x - 9) - \frac{1}{5}(3 - 10x)$

$$-4x + 3 - \frac{3}{5} + 2x$$

$$-2x + \frac{15}{5} - \frac{3}{5} = \left[-2x + \frac{12}{5}\right]$$

Elementary Algebra Test 2

7. Solve for  $x$ :  $2(x-1) - 3(x+1) = 2(x+11)$

$$2x - 2 - 3x - 3 = 2x + 22$$

$$-3x = 27$$

$$x = -9$$

8. Solve for  $x$ :  $\frac{1}{6}\left(\frac{3}{4}x - 2\right) = -\frac{1}{5}$

$$\frac{3}{24}x - \frac{1}{3} = -\frac{1}{5}$$

$$\frac{3}{24}x = -\frac{3}{15} + \frac{5}{15} = \frac{2}{15}$$

$$x = \frac{24}{3} \left(\frac{2}{15}\right) = \frac{48}{15} = \frac{16}{5}$$

9. Solve for  $P$ :  $A = P + Prt$

$$A = P(1 + rt)$$

$$\frac{A}{1 + rt} = P$$

10. Given  $A = P(1 + rt)$ , find  $A$  when  $t = 5$ ,  $r = 0.08$ , and  $P = 250$ .

$$A = 250(1 + (0.08)(5)) = 350$$

😊 = a happy six

Elementary Algebra Test 2

11. Translate to a mathematical expression, use  $x$  to represent the number.

a) Four more than three times a number.

$$\underline{3x + 4}$$

b) The difference between a number and six.

$$\underline{x - 6}$$

c) Five times the sum of a six and a number.

$$\underline{5(x + 6)}$$

d) Three less than six times a number.

$$\underline{6x - 3}$$

12. After a 20% discount, a new DVD player was selling for \$320.00. What was the original price of the DVD player?

$$0.8x = 320$$

$$x = \frac{320}{0.8} = 400$$

13. The second angle of a triangle is three times as large as the first. The third angle measures  $20^\circ$  more than the first angle. What is the measure of each angle?

$$\left. \begin{array}{l} \angle A = x = 32^\circ \\ \angle B = 3x = 96^\circ \\ \angle C = x + 20 = 52^\circ \end{array} \right\}$$

$$x + 3x + (x + 20) = 180$$

$$5x + 20 = 180$$

$$5x = 160$$

$$x = 32^\circ$$

14. When all  $n$  teams in a league play every other team twice, a total of  $N$  games are played, where

$$N = n^2 - n.$$

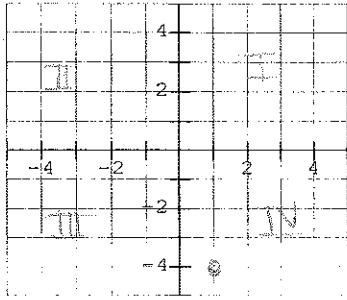
If there are 8 teams in a league and they each play every other team twice, how many games are played?

if  $n = 8$   
then  $(8)^2 - 8 = 56$  games.

Elementary Algebra Test 2

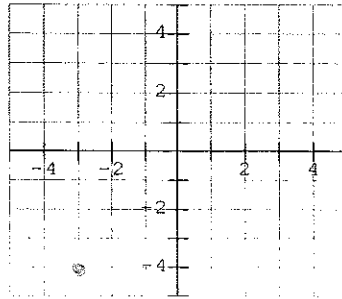
15. Plot the following points and identify the quadrant in which they lie.

a)  $(1, -4)$



Quadrant IV

b)  $(-3, -4)$



Quadrant III

16. Determine if the ordered pair is a solution of the equation.

a)  $(3, -3)$   $y = -\frac{2}{3}x - 1$

$$-3 = -\frac{2}{3}(3) - 1$$

$$-3 = -2 - 1$$

yes

b)  $(-\frac{1}{5}, 5)$   $y = -5x + 2$

$$5 = -5(-\frac{1}{5}) + 2$$

$$5 = 1 + 2$$

$$5 = 3$$

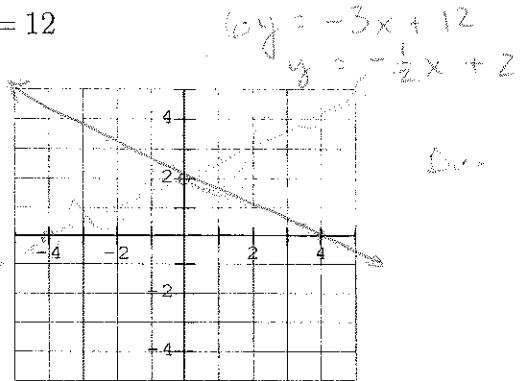
no

Elementary Algebra Test 2

17. Find the  $x$  and  $y$  intercepts and graph:  $3x + 6y = 12$

$x$ -intercept  $x = 4$  (4,0)

$y$ -intercept  $y = 2$  (0,2)

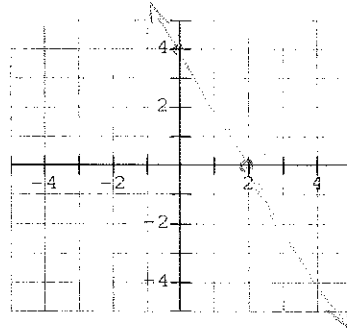


**(8 points)**

18. Graphing by plotting points. Sketch a graph of the following equations by making a table of values and plotting the points.

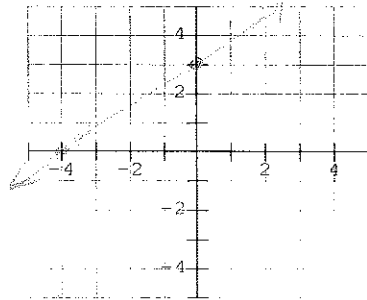
a)  $y = -2x + 4$

$x$	$y$
0	4
2	0



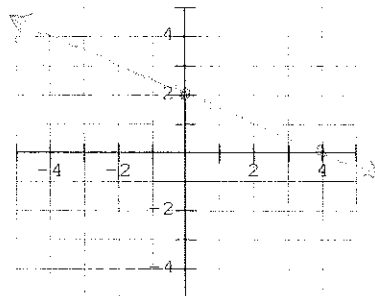
b)  $-3x + 4y = 12$

$x$	$y$
0	3
-4	0



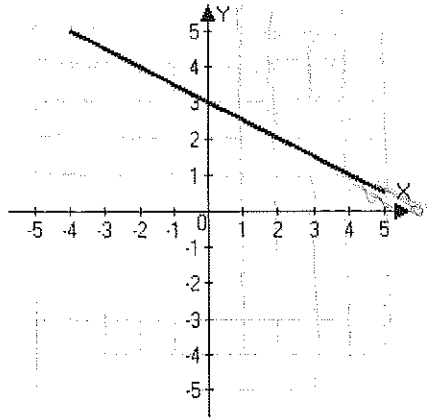
c)  $y = -\frac{1}{2}x + 2$

$x$	$y$
0	2
4	0



Elementary Algebra Test 2

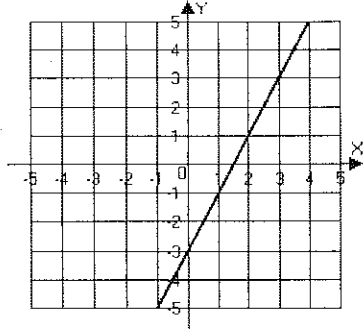
19. Find the slope of the line whose graph is given below:



$m = \left[ -\frac{1}{2} \right]$

grid not visible,  
so they'd have to  
~~give~~ draw it in,  
give partial credit  
for  $-\frac{2}{5}$ .

20. Find the slope-intercept equation of the line given below:



The equation is  $y = \underline{2x - 3}$

$b = -3$

$m = 2$

21. Find the equation of the line that passes through the points (5,-2) and (3,5).

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7}{-2} = -\frac{7}{2}$$

$$5 = -\frac{7}{2}(3 + b) \quad \left( \frac{1}{2} \right) \left( \frac{21}{2} - \frac{7}{2}b \right) \quad \left( \frac{10}{2} \right) \quad \left( -\frac{7}{2}b \right)$$

$$y - y_1 = m(x - x_1)$$

$$\left. \begin{aligned} y - 5 &= -\frac{7}{2}(x - 3) \quad \text{or} \\ y + 2 &= -\frac{7}{2}(x - 5) \end{aligned} \right\}$$

$$+ \frac{30}{14} = b$$

Elementary Algebra Test 2

22. Find an equation of the line parallel to the line  $x + 2y = 4$  that passes through the point  $(-3, 3)$ .

$$y - 3 = -\frac{1}{2}(x + 3)$$

$$y = -\frac{1}{2}x - \frac{3}{2} + 3$$

$$\boxed{y = -\frac{1}{2}x + \frac{3}{2}}$$

$$\begin{aligned} 2y &= -x + 4 \\ y &= -\frac{1}{2}x + 2 \end{aligned}$$

**(8 points)**

23. Simplify:

a)  $\frac{x^5 \cdot x^5}{x^{10}}$

b)  $\frac{x^{11}}{x^5} \quad x^6$

c)  $\frac{28x^6y^{11}}{12x^5y^8}$

d)  $(-x^2)^2$

$$\frac{7}{3} \times y^3$$

$$x^4$$

**Extra Credit:**

24. Subtract the following polynomials:

$$(-3x^3 - 3x^2 + 4x - 4) - (-2x^3 + 3x^2 - 4x + 5)$$

$$\boxed{-x^3 - 6x^2 + 8x - 9}$$

$$-3x^3 - 3x^2 + 4x - 4 + 2x^3 - 3x^2 + 4x - 5$$