

# MATH 081 FINAL EXAM REVIEW

## 1.1 1. Evaluate:

a.  $|10-15|$

b.  $-7^2$

c.  $-4-(-2)-3$

d.  $-6+56\div 8$

e.  $\sqrt{100}+|-5+-7|$

f.  $-5(-7+16\div 2)$

g.  $-36\div(-3)^2\times(-5)$

h.  $-7+(\sqrt{16}+6)(-5)$

i.  $12^2-(21+6\div 3)$

j.  $-2(7-9)^3-(8\div 4\cdot 2)^2$

## 1.2 2. Perform the indicated operation:

a.  $\left(\frac{8}{15}\right)\times\left(-\frac{5}{12}\right)$

b.  $(-16)\times\left(-\frac{3}{8}\right)$

c.  $\left(-\frac{5}{4}\right)\div\left(-\frac{45}{28}\right)$

d.  $\frac{3}{2}\div\left(-\frac{1}{3}\right)$

e.  $\frac{7}{3}\div 21$

f.  $\frac{10}{\frac{5}{7}}$

g.  $\frac{1}{5}+\frac{7}{10}$

h.  $\frac{1}{6}+\frac{4}{15}$

i.  $-\frac{7}{12}-\frac{13}{24}$

j.  $3-\frac{9}{5}$

## 1.2 3. Evaluate the expression:

a.  $\left(\frac{5}{3}\right)^3$

b.  $-\frac{4}{7}+\frac{3}{7}\div\frac{36}{28}$

## 1.3 4. Simplify the expression:

a.  $9x-4y-7+5y-6x-3$

b.  $\frac{7}{8}a+\frac{2}{3}-\frac{1}{4}a-\frac{1}{4}$

c.  $\frac{2}{9}x-\frac{2}{3}+\frac{1}{2}x-\frac{1}{2}$

d.  $3(8x-4)$

e.  $-(6m+5)$

f.  $6(x-8)-2(5x+9)$

g.  $\frac{3}{5}(10x-20)$

h.  $\frac{2}{3}(6x-5)$

## 1.3 5. Evaluate the expression:

- Evaluate  $3(x+7)$  if  $x = -11$ .
- Evaluate  $x^2 + 3x$  if  $x = -5$ .
- Evaluate  $2x - y + 3$  if  $x = -9$  and  $y = 1$ .
- Evaluate  $\frac{28}{c} - \frac{35}{x} - y$  if  $c = -4$ ,  $x = 7$ , and  $y = 11$ .
- Evaluate  $\frac{x}{12} + \frac{y}{5}$  if  $x = 6$  and  $y = -3$ .

2.1  
2.2 6. Solve the following equations:

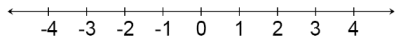
- |   |   |
|---|---|
| a. $x + 9 = -7$                                     | b. $6 = x - 2$                                      |
| c. $-a = -12$                                       | d. $13 = -\frac{z}{2}$                              |
| e. $7x + 3 = -11$                                   | f. $3x - 5 = 2x + 7$                                |
| g. $5x + 3 = 6 - 2x$                                | h. $8x - 16 + 4 = 5x - 9x$                          |
| i. $-3(5x - 3) = 14$                                | j. $4(x + 3) - 8x = 32$                             |
| k. $-7(x + 2) + 9 = -4x - 5$                        | l. $4 - 5y = 7y - 2(3 - y)$                         |
| m. $\frac{3}{5}x = -\frac{4}{7} + x$                | n. $\frac{6}{5}y + 3 = \frac{3}{10} - \frac{1}{5}y$ |
| o. $\frac{1}{6}x + \frac{3}{10} = 1 - \frac{3}{5}x$ |   |

2.1  
2.2 7. Write an algebraic equation for each word problem. Then solve the equation.

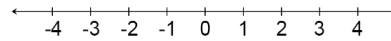
- The difference of 9 and 5 times a number is 14. Determine the number.
- If the product of  $-4$  and a number is increased by 12, the result is 84. Determine the number.
- The admission fee at a festival is \$10. Each ride costs \$2. If Lisa has \$40 to spend, how many rides can she go on?
- A park charges a \$25 fee plus \$6 per hour to rent a kayak. For how many hours can Sylvia rent the kayak if she has \$55 to spend?

2.3 8. Solve each inequality, graph the solution set, and write it in interval notation:

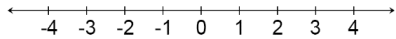
a.  $3x - 7 < 11 + 9x$



b.  $5(5x - 6) < 23x - 26$



c.  $-17x + 2 \leq -15x$



3.1 9. Find the indicated variable:

a. Use the formula  $P = 2L + 2W$  to find  $P$  if  $L = 10$  and  $W = 4$ .

b. Use the formula  $F = ma$  to find  $m$  if  $F = 30$  and  $a = 5$ .

3.1 10. Solve the equation for the indicated variable:

a. In the equation  $y = mx + b$ , solve for  $x$ .

b. In the equation  $PV = nRT$ , solve for  $T$ .

c. In the equation  $N = 2(A - s)$ , solve for  $A$ .

d. In the equation  $6x + 3y = -12$ , solve for  $y$ .

3.2 11. Solve the following proportions:

a.  $\frac{-26}{n} = \frac{4}{5}$

b.  $\frac{2}{1.5} = \frac{n}{4.5}$

3.2 12. Translate each problem into a proportion and solve the problem:

a. A solution calls for 15 ml of a drug for every 38 liters of water. How much water is needed for 4.5 ml of the drug?

b. If 2.5 pounds of carriage bolts costs \$3.80, how much will 21.5 pounds cost?

c. A recipe that makes 18 muffins requires 2 eggs. How many eggs are needed to make 72 muffins?

3.2 13. Perform each unit conversion:

a. Convert 60 inches to feet. Use the conversion fact: **12 inches = 1 foot.**

b. Convert 65 grams to milligrams. Use the conversion fact: **1000 milligrams = 1 gram.**

c. Convert 8 pounds to ounces. Use the conversion fact: **16 ounces = 1 pound.**

d. Convert 647 centimeters to meters. Use the conversion fact: **100 centimeters = 1 meter.**

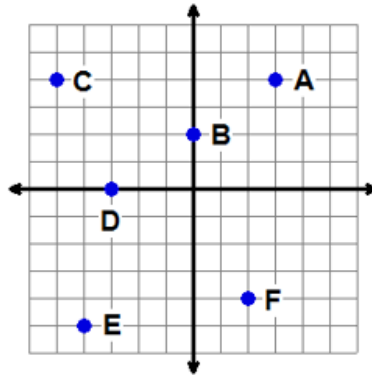
3.3 14. Solve each percent problem:

- a. 23 is 5% of what number?
- b. What percent of 50 is 27?
- c. What is 150% of 40?
- d. 3 is what percent of 120?

3.3 15. Solve each application problem:

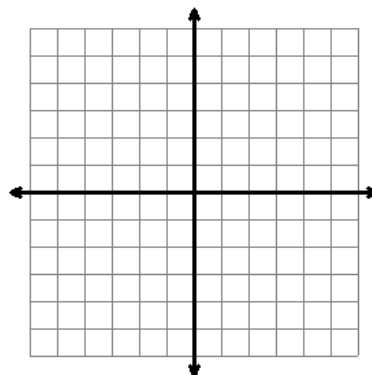
- a. An automobile company is recalling 8% of its cars sold in Baltimore. If 350 cars were sold in Baltimore, how many cars are being recalled?
- b. Alison bought a sofa for \$239 and paid \$14.34 in tax. What is the tax rate?
- c. Andre is paid 12.5% commission on his sales. If he wants to earn \$2500 in commission, what amount of sales must he make?
- d. A shirt costs \$45 and a pair of pants costs \$50. If sales tax is 6%, do I have enough to buy both with \$100? Explain why or why not.
- e. What is the simple interest on a loan of \$30,000 for 5 years if the interest rate is 8.4%?

4.1 16. Write the ordered pair  $(x, y)$  for each of the points shown on the graph:



4.1 17. Plot the points on the graph and label them using the capital letters.

$$A = (1, 5) \quad B = (2, -3) \quad C = (-3, -1) \quad D = (-4, 5) \quad E = (5, 0) \quad F = (0, -3)$$



4.1 18. Determine the unknown coordinate in each ordered pair, so that it is a solution of the equation.

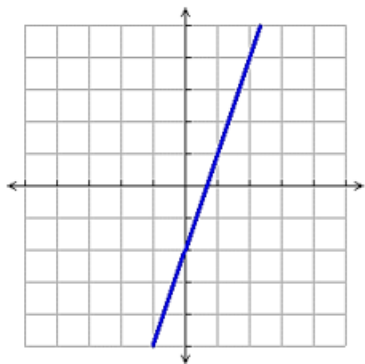
- a. Determine the unknown coordinate so  $(\underline{\hspace{1cm}}, -2)$  is a solution of  $4x - 3y = 18$ .
- b. Determine the unknown coordinate so  $(4, \underline{\hspace{1cm}})$  is a solution of  $-3x + 2y = -14$ .

4.1 19. Determine the intercepts of the graph of the given equation:

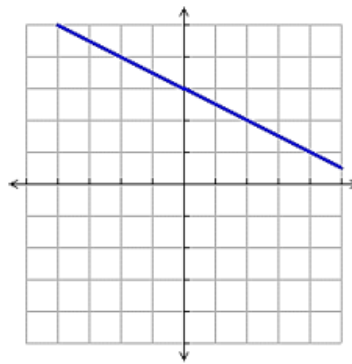
- a. Find the  $x$ -intercept of the graph of  $3x + 2y = -6$ .  
Find the  $y$ -intercept of the graph of  $3x + 2y = -6$ .
- b. Find the  $x$ -intercept of the graph of  $-5x + 3y = -30$ .  
Find the  $y$ -intercept of the graph of  $-5x + 3y = -30$ .

4.2 20. Determine the slope of each graphed line:

a.



b.

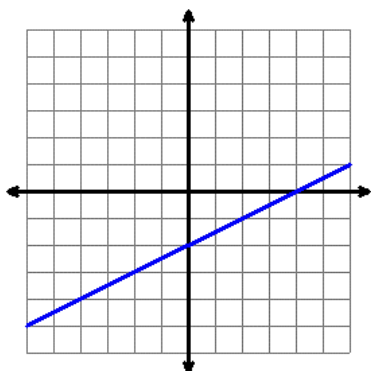


4.2 21. Find the slope of the line:

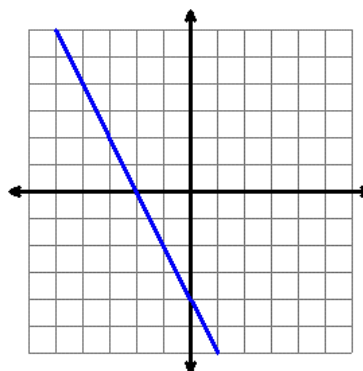
- a. passing through the points  $(1, 10)$  and  $(3, 4)$
- b. passing through the points  $(8, -3)$  and  $(4, -7)$
- c. passing through the points  $(5, 3)$  and  $(7, 3)$

4.3 22. Write the equation of each graphed line:

a.



b.

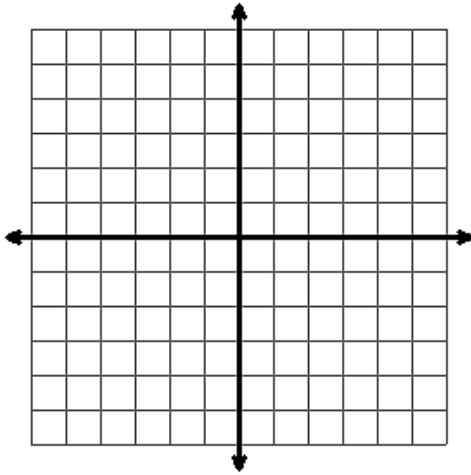


4.3 23. Use the information given to write the equation of each line:

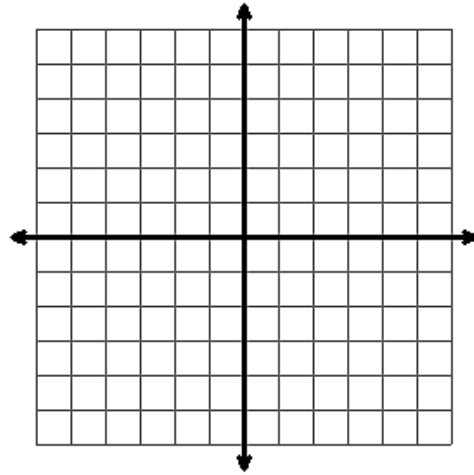
- Write the equation of the line with slope 3 that passes through the point  $(2, -4)$ .
- Write the equation of the line with slope  $-\frac{5}{4}$  that passes through the point  $(-8, 13)$ .
- Write the equation of the line that passes through the points  $(4, 6)$  and  $(8, 9)$ .
- Write the equation of the line that passes through the points  $(-9, -2)$  and  $(3, 4)$ .
- Write the equation of the line that passes through the points  $(-9, -2)$  and  $(-9, 4)$ .

4.4 24. Graph each line:

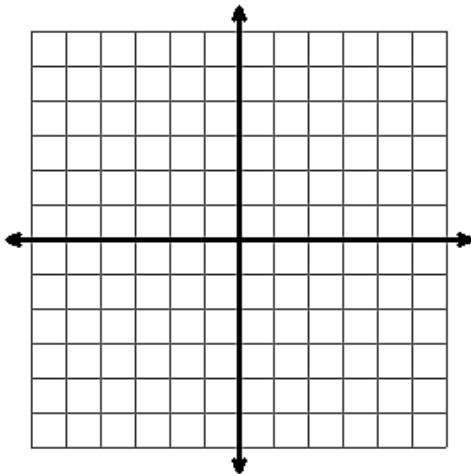
a.  $y = \frac{2}{5}x - 3$



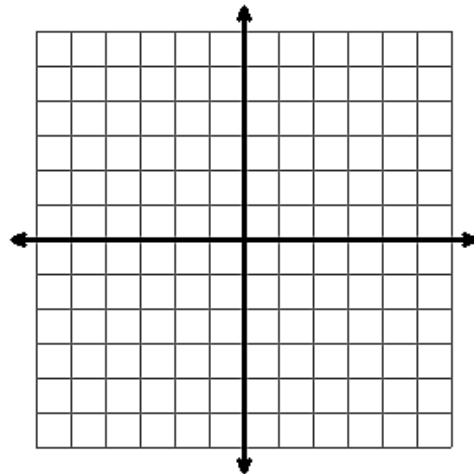
b.  $y = -\frac{4}{3}x + 2$



c.  $2x - y = -4$

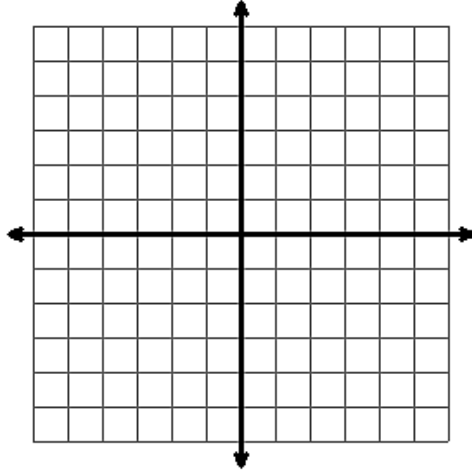


d.  $6x + 5y = 30$



4.4 25. Solve each system of equations by graphing:

a.  $y = -\frac{1}{2}x + 4$   
 $y = 2x - 1$



b.  $x + y = -1$   
 $y = -4x + 2$

