

MATH 081 FINAL EXAM REVIEW

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

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

3. Evaluate the expression:

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

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

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

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 $y = -3$.

6. Solve the following equations:

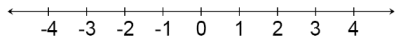
- | | |
|---|---|
| a. $x + 9 = -7$ | b. $6 = x - 2$ |
| c. $-a = -12$ | d. $13 = -\frac{z}{2}$ |
| e. $7x + 3 = -11$ | f. $3x - 5 = 2x + 7$ |
| g. $5x + 3 = 6 - 2x$ | h. $8x - 16 + 4 = 5x - 9x$ |
| i. $-3(5x - 3) = 14$ | j. $4(x + 3) - 8x = 32$ |
| k. $-7(x + 2) + 9 = -4x - 5$ | l. $4 - 5y = 7y - 2(3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

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

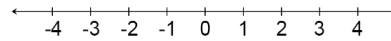
- The difference of 9 and 5 times a number is 14. Determine the number.
- If the product of -4 and a number is increased by 12, the result is 84. Determine the number.
- The admission fee at a festival is \$10. Each ride costs \$2. If Lisa has \$40 to spend, how many rides can she go on?
- A park charges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

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

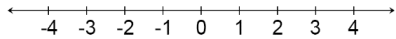
a. $3x - 7 < 11 + 9x$



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



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



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 $a = 5$.

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 .

11. Solve the following proportions:

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

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

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?

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.**

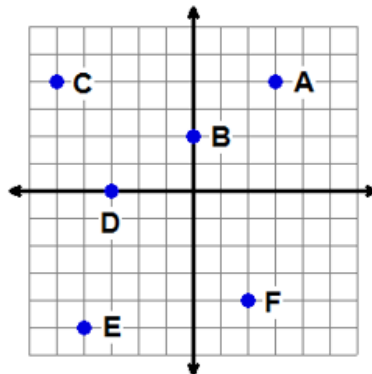
14. Solve each percent problem:

- 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?

15. Solve each application problem:

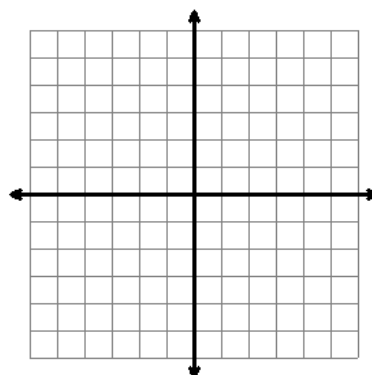
- a. An automobile company is recalling 8% of its cars sold in Baltimore. If 350 cars were sold in Baltimore, how many cars are being recalled?
- b. Alison bought a sofa for \$239 and paid \$14.34 in tax. What is the tax rate?
- c. Andre is paid 12.5% commission on his sales. If he wants to earn \$2500 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%?

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



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

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



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

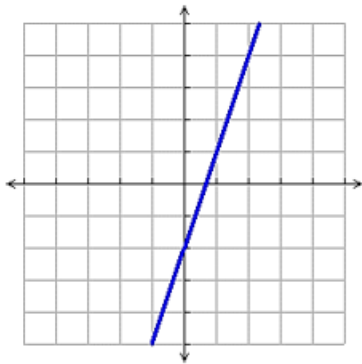
- a. Determine the unknown coordinate so $(\underline{\hspace{1cm}}, -2)$ is a solution of $4x - 3y = 18$.
- b. Determine the unknown coordinate so $(4, \underline{\hspace{1cm}})$ is a solution of $-3x + 2y = -14$.

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

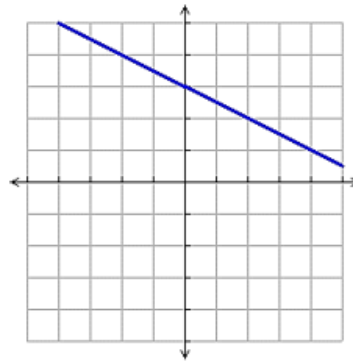
- a. Find the x -intercept of the graph of $3x + 2y = -6$.
Find the y -intercept of the graph of $3x + 2y = -6$.
- b. Find the x -intercept of the graph of $-5x + 3y = -30$.
Find the y -intercept of the graph of $-5x + 3y = -30$.

20. Determine the slope of each graphed line:

a.



b.

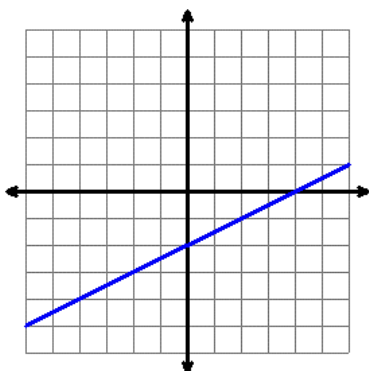


21. Find the slope of the line:

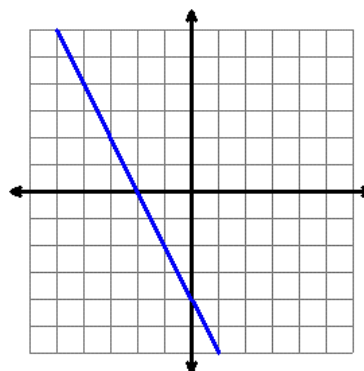
- a. passing through the points $(1, 10)$ and $(3, 4)$
- b. passing through the points $(8, -3)$ and $(4, -7)$
- c. passing through the points $(5, 3)$ and $(7, 3)$

22. Write the equation of each graphed line:

a.



b.

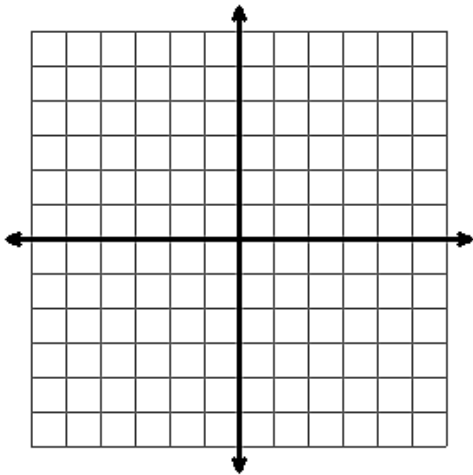


23. Use the information given to write the equation of each line:

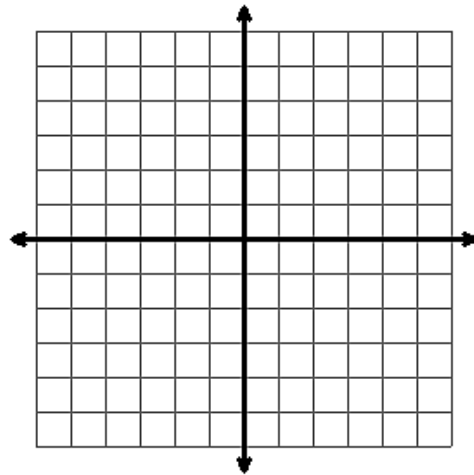
- Write the equation of the line with slope 3 that passes through the point $(2, -4)$.
- Write the equation of the line with slope $-\frac{5}{4}$ that passes through the point $(-8, 13)$.
- Write the equation of the line that passes through the points $(4, 6)$ and $(8, 9)$.
- Write the equation of the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

24. Graph each line:

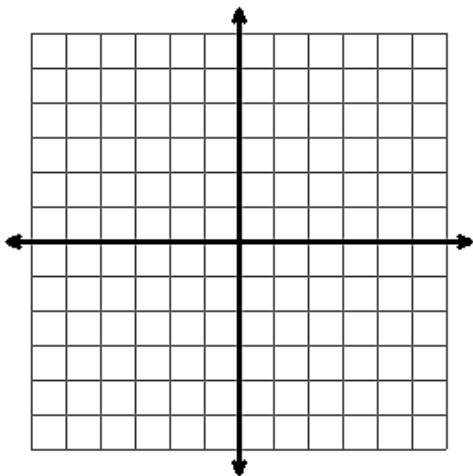
a. $y = \frac{2}{5}x - 3$



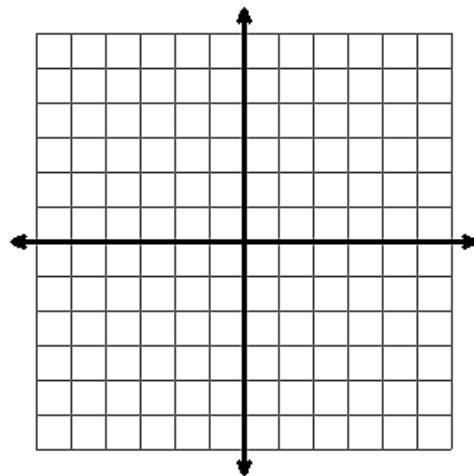
b. $y = -\frac{4}{3}x + 2$



c. $2x - y = -4$

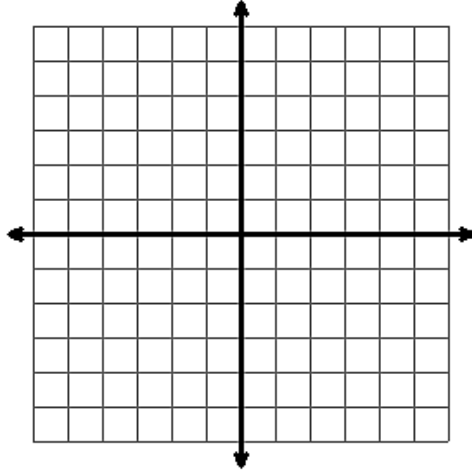


d. $6x + 5y = 30$



25. Solve each system of equations by graphing:

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



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

