

NAME: \_\_\_\_\_ Score \_\_\_\_\_ /100  
Please print

SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION

2 points each for questions 1 – 25. 5 points each for questions 26 – 35.

Circle T or F, whichever is correct.

1. T F The graph of a linear equation in two variables is a non-vertical line.
2. T F The graph of a linear inequality in two variables is a non-vertical line.
3. T F  $x^{-3} = \frac{1}{x^3}$ .
4. T F  $32 \times 10^{43}$  is an example of scientific notation.
5. T F The solution for  $|3x + 2| < 1$  is the interval  $(-1, 1)$ .
6. T F  $|x + 2| > 5$  is equivalent to  $-5 > x + 2 > 5$
7. T F A solution for an equation in two variables is a number.
8. T F The equation  $3x + 2 = -7y + \pi$  is a linear equation in two variables.
9. T F The graph of  $3y - 2x < 6$  is a half-plane.
10. T F  $x^3x^5 = x^{15}$ .

Fill in each of the blanks to make the statements true.

11. The slope-intercept form of the equation of a non-vertical line is \_\_\_\_\_.
12. The point-slope form of the equation of a non-vertical line is \_\_\_\_\_.
13. The formula for the slope of a line through two points is \_\_\_\_\_.
14. The equation  $y = 3x + 5$  is the boundary equation for \_\_\_\_\_ and \_\_\_\_\_.
15. The slope of a horizontal line is \_\_\_\_\_.
16. The slope of a vertical line is \_\_\_\_\_.
17. Two lines are perpendicular if their slopes are \_\_\_\_\_ of each other.
18. The formula for the distance between two points is \_\_\_\_\_.
19. Write 35,000,000 in scientific notation \_\_\_\_\_.
20. Write  $1.7 \times 10^{-5}$  in decimal notation \_\_\_\_\_.

21. If the inequality symbol in an inequality in two variables is replaced with an equality symbol, the graph of the resulting equation is called the \_\_\_\_\_ for the inequality.
22. Write the equation of the horizontal line with y-intercept (0, 5) \_\_\_\_\_.
23. What is the distance between the points (2, 3) and (3, 4)? \_\_\_\_\_.
24. A point is on the x-axis if and only if its second coordinate is \_\_\_\_\_.
25. What is the base in the exponential expression  $-7^{49}$ ? \_\_\_\_\_.
26. Label the quadrants in Fig. 2.

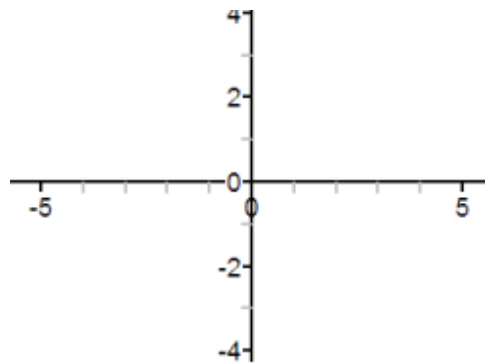


Fig. 2

27. The graph of the line  $\frac{3}{5}x - \sqrt{3}y = \pi$  is shown in Fig. 1.  
 Show the work necessary to determine the solution set for  $\frac{3}{5}x - \sqrt{3}y > \pi$ . Use words to explain your work.  
 Then shade that solution set on Fig. 1.

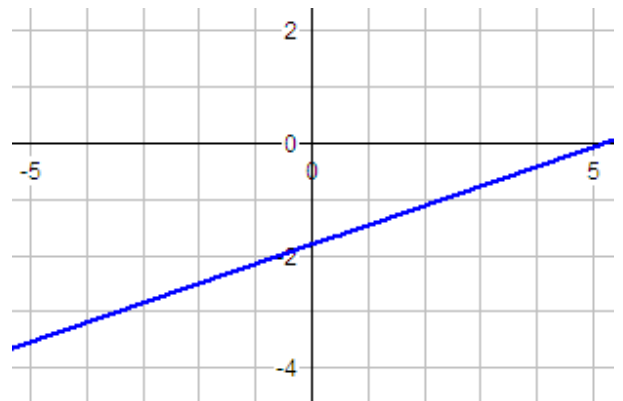


Fig. 1

28. Simplify  $\left(\frac{x^7y^{-3}}{z^{-4}}\right)^{-5}$ . Write the result with positive exponents only.

29. Perform the following division. Write the quotient in scientific notation.

$$\frac{3.6 \times 10^{-4}}{9 \times 10^{12}}$$

30. Write the inequality  $|4x - 9| < 7$  as an equivalent compound inequality. **Do not solve it!**

31. Solve the equation  $|5x - 7| < 2$ . Reduce all fractions in your answer. Don't use mixed numbers. Don't use decimals. Improper fractions are just fine.

32. Write the equation of the line with slope  $\frac{7}{5}$  and y-intercept 9. Reduce all fractions in your answer. Don't use mixed numbers. Don't use decimals. Improper fractions are just fine.

33. Write the equation of the line through  $(3, -2)$  with slope 5. Express the equation in slope intercept form.  
Reduce all fractions in your answer. Don't use mixed numbers. Don't use decimals. Improper fractions are just fine.

34. Calculate the distance between  $(-3, 5)$  and  $(2, -4)$ . Reduce all fractions in your answer. Don't use mixed numbers. Don't use decimals. Improper fractions are just fine.

35. Calculate the slope of the line through  $(-3, 5)$  and  $(2, -4)$ . Reduce all fractions in your answer. Don't use mixed numbers. Don't use decimals. Improper fractions are just fine.