

NAME: _____ Score _____ /100
Please print

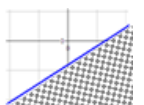
SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION

Circle T or F, whichever is correct. 2 pts. each for 1 – 20. 5 pts. each for 21 – 32.

1. T F The graph of a linear inequality in two variables is a half-plane.
2. T F The graph of a linear inequality in two variables is a line.
3. T F In a system of linear equations, if the value of one of the variables is known, an equivalent system is generated if that value is substituted into the equations.
4. T F An expression of the form a^n is called an exponential expression.
5. T F The sum of any two terms is a term.
6. T F The graph of $3x - 47y \leq 53$ includes the boundary line.
7. T F $(a + b)^2 = a^2 + b^2$
8. T F $(ab)^2 = a^2b^2$
9. T F 0.456×10^{-23} is an example of scientific notation.
10. T F $\sqrt{x} = x^{\frac{1}{2}}$ if \sqrt{x} is a real number.

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

11. Two systems of equations are **equivalent** systems if they have the same solution sets.
12. A **term** is a letter, a number, or a product of letters and numbers.
13. The equation of the boundary line for the inequality $3x + 5y > 8$ is **$3x + 5y = 8$**
14. Two terms are called **like** terms or similar terms if they have the same variables with the same exponents.
15. A solution for a system of equations is an ordered n-tuple of numbers which satisfy **all** of the **equations** in the system of equations.
16. The graph of the solution of a system of two equations in two variables is the point (or points) of **intersection** of the two lines.
17. The collection of all solutions of a system of equations is called the **solution set** of the system of equations.
18. A system of equations consists of two or more equations involving the same **variables**.
19. The degree of $3^5x^2y^4$ is **6**
20. The graph of the boundary line for an inequality is shown at the right. Testing the point (0,0) in the inequality yields a false statement. Sketch the graph of the inequality.



21. Write $64^{-1}y^6x^{-5}$ with positive exponents only

$$64^{-1}y^6x^{-5} = \frac{y^6}{64x^5}$$

22. Write $\frac{5^{37}x^{-3}}{y^4}$ with negative exponents only.

$$\frac{5^{37}x^{-3}}{y^4} = \frac{y^{-4}x^{-3}}{5^{-37}}$$

23. Write $\frac{7x^{-2}}{y^2t^{-3}}$ so all the variables appear in the numerator. (The denominator should be 1)

$$\frac{7x^{-2}}{y^2t^{-3}} = 7x^{-2}y^{-2}t^3$$

24. Simplify and write your answer with positive exponents only $(-2^{-2}y)^3$

$$(-2^{-2}y)^3 = \left(\frac{-y}{2^2}\right)^3 = -\frac{y^3}{4}$$

25. Perform the division and write your result in scientific notation. $\frac{1.2 \times 10^9}{0.6 \times 10^{-5}}$

$$\frac{1.2 \times 10^9}{0.6 \times 10^{-5}} = 2 \times 10^{14}$$

26. In each case one of the choices is correct. Please circle the correct choice.

- a) In Fig. A, the solid black line is the graph of $(4x - 7y < -11, \quad 4x - 7y = -11, \quad 4x - 7y > -11)$
- b) In Fig. A, the red shaded area is the graph of $(4x - 7y < -11, \quad 4x - 7y = -11, \quad 4x - 7y > -11)$
- c) In Fig. A, the blue shaded area is the graph of $(4x - 7y < -11, \quad 4x - 7y = -11, \quad 4x - 7y > -11)$

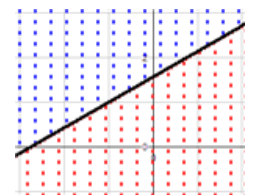


Fig. A

27. How can you tell just by looking at the system $\begin{cases} y = 3x + 5 \\ y = 3x - 7 \end{cases}$ that it has no solution?

The two equations have the same slope and different y-intercepts so they are parallel lines and hence do not intersect. Therefore the system of equations has no solution. The solution set is the empty set \emptyset

