



Name _____ Period _____ Date _____

Vocabulary: Define each word and give an example.

1. Unit Analysis
2. Linear Equation
3. Symmetric Property of Equality

Short Answer:

4. Explain why significant digits and units are important in calculations.
5. What is the inverse operation of division? Describe how inverse operations are used to solve equations.
6. When solving an equation and the variable is eliminated, how can it be determined if the equation has infinitely many solutions? What is the special name for this type of equation?
7. What number would you multiply the equation $\frac{7x}{6} + 2(x - 8) = \frac{5}{18} - \frac{2}{9}x$ by to wipe out (clear) the fractions?

Review:

8. Rewrite the number in decimal form.
 - a. 1.228×10^6
 - b. 6.82×10^{-5}
9. Rewrite the number in scientific notation.
 - a. 7,500,000
 - b. 0.00000156
10. The IQR for a set of 20 numbers was found to be 8. If the five number summary is 8, 17, 22, 25, and 42, determine if 39 would be an outlier.

**Problems:**

Be sure to show all work used to obtain your answer. Circle or box in the final answer.



11. In terms of precision and accuracy, what does the bulls-eye at the right show?

12. Find the degree of precision for the pipette:



13. Convert 25 cm/sec to km/hr.

14. Find the number of significant digits in the following numbers:

a. 10.00

b. 4,700

c. 0.00034

15. Perform the indicated operation. Write the answer with the correct number of significant digits.

$$1.8530 \text{ ft} \times 341.8 \text{ ft}$$

16. Perform the indicated operation. Write the answer with the correct number of significant digits.

$$895.136 \text{ m} + 276.51 \text{ m}$$

17. Which of the following are linear equations? Circle the letter if it is linear. (Note: There may be more than one answer.)

A. $4 + \frac{x}{3} = 12$

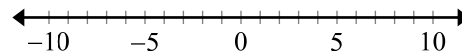
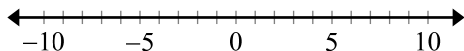
B. $1 + x = x^2$

C. $6x = 4 - 8(x + 2)$

18. Solve the following equations. Graph each solution on a number line.

a. $5 - t = 8$

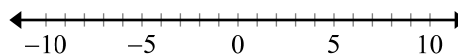
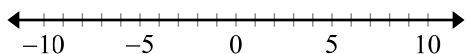
b. $5 = 24x - 7$





c. $|-5| - 2(m + 6) = 3$

d. $8p - 8 = 2(5 - 2p) + 10$



19. Determine the number of solutions each equation has.

a. $4(3 - y) = 15 - 4y - 3$

b. $\frac{2x}{3} - 1 = \frac{5}{6} + \frac{1}{2}\left(\frac{4x}{3}\right)$

c. $2x - 8 = 4(-2 - 3x)$

20. Solve the equations. Round your answer to the nearest tenth if necessary.

a. $4 - \frac{x}{5} = \frac{3}{2} + x + \frac{1}{10}$

b. $5.2 - 3.05x = 1 + 6.15x$

21. Solve the equation for x . $y - 5 = \frac{2}{3}(x - 6)$

22. Solve the formula $A = \frac{1}{2}h(b_1 + b_2)$ for h .



23. Find the solution. Justify each step. $25 + 10(12 - x) = 5(2x - 7)$

24. Janine has job offers at two companies. One company offers a starting salary of \$28,000 with a raise of \$3,000 each year. The other company offers a starting salary of \$36,000 with a raise of \$2,000 each year. After how many years would Janine's salary be the SAME with both companies? What would that salary be?

25. Maggie's brother is three years younger than twice her age. The sum of their ages is 24. How old is Maggie?

Multiple Choice Section: **Circle the best answer.**

26. Nina can braid 48 inches of rope in 1 hour. What is her speed in feet per hour?

- a. 0.8 ft/h
- b. 4 ft/h
- c. 576 ft/h
- d. 2880 ft/h



27. A car is traveling at a rate of 40 miles per hour. What is this speed in feet per minute?

a. $\frac{2}{3}$ ft/min

c. 3520 ft/min

b. $\frac{3}{2}$ ft/min

d. 211,200 ft/min

28. Solve the equation $A = 2\pi rh + 2\pi r^2$ for h .

A. $h = A - 4\pi r^2$

B. $h = A - r$

C. $h = \frac{A - \pi r^2}{\pi r}$

D. $h = \frac{A - 2\pi r^2}{2\pi r}$

29. Hope uses the equation $C = 3h + 9$ to find the total cost, C , in dollars, of renting a bike for h hours. Hope cannot spend more than \$30. What is the maximum number of hours she can rent the bike?

A. 7

B. 10

C. 13

D. 18