Coordinate Algebra Support

Name: Mrs. Jordan

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Unit 1: Relationships Between Quantities
REVIEW GUIDE

Converting Units of Measure

Convert the customary units to complete the following equations.

1. $60\ in =$ 5 ft
2. $2\ ft =$ $0.\overline{6}$ yd or $2/3$
3. $2\ mi =$ 10,560 ft
4. $60\ mph =$ 88 $\frac{ft}{sec}$
5. $10\ days =$ 14,400 $mins$
6. $12\ gallons =$ 96 $pints$

Convert the metric units to complete the following equations.

7. $5\ m =$ 500 cm
8. $3\ kl =$ 300000 cl
9. $40\ mg =$ .04 g

Solving Linear Equations

Solve each of the following equations. Be sure to show all work, and circle your answer!

10. $x + 16 = 9$

$-16 \quad -16$

$x = -7$

$-7 + 16 = 9$

$9 = 9$

11. $6 = 1 - 2x + 5$

$6 = 6 - 2x$

$6 \quad 6$

$0 = -2x$

$0 = x$

12. $-6 = \frac{x}{18} \cdot 18$

$-108 = x$

13. $5x + 34 = -2(1 - 7x)$

$5x + 34 = -2 + 14x$

$-5x \qquad -5x$

$34 = -2 + 9x$

$+2 \quad +2$

$\frac{36}{9} = \frac{9x}{9}$

$4 = x$

14. $-1 = \frac{5+x}{6} \cdot 6$

$-6 = 5 + x$

$-5 \quad -5$

$-11 = x$

$-1 = \frac{5-11}{6}$

$-1 = \frac{-6}{6}$

$-1 = -1$

15. $12 = -4(-6x - 3)$

$12 = 24x + 12$

$-12 \qquad -12$

$0 = 24x$

$0 = x$

16. $2(x + 5) = -2$

$2x + 10 = -2$

$-10 \quad -10$

$\frac{2x}{2} = \frac{-12}{2}$

$x = -6$

17. $8x - 2 = -9 + 7x$

$-7x \qquad -7x$

$x - 2 = -9$

$+2 \quad +2$

$x = -7$

Parts of an Algebraic Equation

18. What is the *expression* of $5x + 2 = 9$?

$5x+2$

19. List all of the *coefficients* in the equation $7x^2 - 1x - 2 = 1$.

7, -1

20. How many *terms* are in the equation $6x^2 + 8x + 9 = 7$?

3

21. List the *terms* of the equation $7x + 2 = 0$

7x, 2, 0?

22. Name the *like terms* in the equation $-x^2 - 9x + 6x = 8$.

-9x, 6x

23. What are the *operators* in the equation in question #19?

-, •, =

Identifying Parts of an Equation Vocabulary

Match the vocabulary word with its correct definition.

24. g Coefficient
25. f Variable
26. d Terms
27. c Expression
28. b Operator
29. e Constant
30. a Equation

a. A statement saying that two things are equal to each other
b. A symbol that tells you what to do
c. A group of terms separated by an addition sign or a subtraction sign
d. A part of an expression or an equation separated by a "+" sign or a "-" sign.
e. The number by itself without a variable
f. The unknown value we are trying to solve. Typically represented by a letter.
g. Used to Multiply the Variable.

Evaluating Word Problems

For each of the following word problems, first ***write an algebraic equation***, then, ***solve the equation***.

31. Mrs. Jordan is baking cookies. The recipe calls for $4\frac{1}{2}$ cups of flour. She already put in $2\frac{3}{4}$ cups. How many more cups of flour does Mrs. ~~Wilson~~ Jordan still need to add to the cookie mixture?

$X = 4.5 - 2.75$ $\left\{ 2\frac{3}{4} + X = 4\frac{1}{2} \right.$ $X = 1\frac{3}{4}$ or 1.75c

32. How many packages of Expo markers can Ms. Goss buy with $32, if one package costs $4?

$\frac{32}{4} = x$ $\quad 4x = 32$ $\quad x = 8$

33. Daisy ate 12 of the cookies that Mrs. Jordan baked. That was $\frac{1}{5}$ of them! How many total cookies did Mrs. Jordan bake?

$\frac{1}{5} \cdot \frac{1}{5} x = \frac{12}{1} \cdot \frac{5}{1} = \frac{60}{1}$ or 60

34. The sum of three consecutive numbers is 72. What is the largest of these numbers?

$3x + 3 = 72$
$-3 \quad -3$

$\frac{3x}{3} = \frac{69}{3}$ $\quad x = 23, 24, 25$

35. Mr. Primm bought a book for $9, and he also bought two candy bars. He spent a total of $14. How much did each candy bar cost?

$2x + 9 = 14$ $\quad x = \$2.50$
$2x = 5$

Translating Expressions

Write an algebraic expression to represent the following and then solve (if possible).

36. The sum of fourteen and a number, subtracted from five.

$5 - (14 + x)$

37. Twice the difference between four and a number is sixteen. Find the number.

$2(4 - x) = 16$ $\quad \frac{-2x}{-2} = \frac{8}{-2}$ $\quad x = -4$
$8 - 2x = 16$

38. Three times a number added to eight is fourteen. Find the number.

$3(x + 8) = 14$ $\quad 3x = -10$
$3x + 24 = 14$ $\quad x = -10/3$ or $-3.\overline{3}$

39. The product of five and a number is twenty-five. Find the number.

$5x = 25$ $\quad x = 5$

40. Three more than five times a number is twenty-three. Find the number.

$3 + 5x = 23$ $\quad 5x = 20$ $\quad x = 4$