

Solving Word Problems Review

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Mathematics 9 Equation Solving Solving Word Problems Review

Solving Word Problems

1. Establish what items you are working with or need to find.
2. Write "let" statements for each item. Use a simple variable to represent the item you know the least about. Write the other items in terms of this first one.
3. Use the "let" statements to help create the equation.
4. Solve the equation using correct algebra.
5. Remember to answer the question in a short sentence. Make sure to include the correct units where necessary.

A. Simple Number Word Problem

let statement $x = \text{the number}$
(Two times a number decreased by seven) is (-25) What is the number?

equation $2x - 7 = -25$
 $\frac{2x}{2} = \frac{-18}{2}$

Sentence.
The number is -9

Solution $x = -9$

B. Multi-Item Word Problem

Three consecutive even numbers has a total of 36. What are the numbers?

$x = 1^{\text{st}} \text{ number}$
 $x + 2 = 2^{\text{nd}} \text{ number}$
 $x + 4 = 3^{\text{rd}} \text{ number}$

$$x + x + 2 + x + 4 = 36$$

$$3x + 6 = 36$$

$$\frac{3x}{3} = \frac{30}{3}$$

$$x = 10$$

The numbers are 10, 12, 14

C. Complex Word Problem

Rachel is eight years older than Alec. (Three years ago the sum of their ages) was 14. How old is each person now?

$x = \text{Alec's age now}$
 $x + 8 = \text{Rachel's age now.}$

Name	Now	3 yrs ago
Alec	x	$x - 3$
Rachel	$x + 8$	$x + 8 - 3$

$$x - 3 + x + 8 - 3 = 14$$

$$2x + \cancel{2} = \cancel{14} - 2$$

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

$$x = 6$$

Alec is 6 and
Rachel is 14

$$3 + 11 = 14$$

(When you divide the sum of a number and two by 3) the result is 4. What is the number?

$x = \text{the number}$

$$\frac{x + 2}{3} = 4$$

$$\frac{x}{3} + \frac{2}{3} = 4$$

$$3 \left[\frac{1}{3}x + \frac{2}{3} = 4 \right]$$

$$x + \cancel{2} = \cancel{12} - 2$$

$$x = 10$$

The number is 10

Name: _____

Solving Word Problems Review Assignment

Solve the following. Make sure to include let statements, equation, solution and answer in sentence.

1. One number is three less than one-half of another number. If the sum of the numbers is 27, what is the numbers?

2. A number diminished by 12 is 28. What is the number?

3. Lake Corn is six times as deep as Lake Wilson. If the difference in their depths is 45 m, how deep is each lake?

4. Three times a number plus 8 is equalled to the same number plus twelve. Find the number.

5. The difference in a number and five divided by two is equalled to the same number minus eight. What is the number?

6. Find 3 consecutive numbers which total 66.

7. A rectangular garden has a perimeter of 52 m. If the length of garden is six metres more than the width, determine the dimensions.

8. When you divide three times the sum of a number and four by 2 it equals the same number plus ten. What is the number?

9. Bill is twice as old as his brother Dan. In seven years, Bill will be only one and one-half times as old as Dan. How old is Bill now?

10. Find 3 consecutive numbers so that when you multiply the first number by four it is equaled to three times the third number.

11. Find 3 consecutive even numbers so that when you add the first and second numbers together the result is the third number plus six.

12. One number is half of another number. One-third of the larger number plus three is equaled to the smaller number. What is the numbers?

Answers

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| 1) Numbers are 20 & 7 | 2) Number is 40 |
| 3) Wilson Lake is 9 m
Corn Lake is 54 m | 4) Number is 2 |
| 5) Number is 11 | 6) Numbers are 21, 22 & 23 |
| 7) Width is 10 m
Length is 16 m | 8) Number is 8 |
| 9) Bill is 14 years old | 10) Numbers are 6, 7, & 8 |
| 11) Numbers are 8, 10 & 12 | 12) Numbers are 9 & 18 |