

Solving Word Problems Part 4

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Mathematics 9
Equation Solving
Solving Word Problems Part 4

Last day we looked at solving complex multi item problems. Today we will continue to look at solving complex number problems.

Solving Multi-Item 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. Multi-Item Word Problems

- 1) The sum of four **consecutive even numbers** is 52. What are the second and third numbers?

$$x = \text{1st number}$$

$$x + 2 = \text{2nd number}$$

$$x + 4 = \text{3rd number}$$

$$x + 6 = \text{4th number}$$

$$(x) + (x+2) + (x+4) + (x+6) = 52$$

$$4x + \cancel{12} = 52$$

$\quad \quad \quad -12 \quad \quad -12$

$$\frac{4x}{4} = \frac{40}{4}$$

$$x = 10$$

The second number is 12 and third number is 14.

- 2) Find 3 **consecutive odd numbers** so that when you multiply the first number by six and then reduce it by six it is equal to the sum of the second and third number together.

$$\begin{aligned} X &= \text{1st number} \\ X + 2 &= \text{2nd number} \\ X + 4 &= \text{3rd number} \end{aligned}$$

$$6x - 6 = (x + 2) + (x + 4)$$

$$6x - 6 = \cancel{2x} + 6$$

$$4x - \cancel{6} = \cancel{6}$$

$$\frac{4x}{4} = \frac{12}{4}$$

$$x = 3$$

The numbers are 3, 5 & 7

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

$$n = \text{the number}$$

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

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

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

$$n + \cancel{2} = \cancel{12}$$

$$n = 10$$

The number is 10.

Assignment: Solving Word Problems Part 4 Assignment

Name: _____

Solving Word Problems Part 4 Assignment

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

1. When 10 is added to one-half of a number the result is 13. What is the number?

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

3. The length of a rectangle exceeds the width by eleven. If the perimeter of the rectangle is 42 mm, determine the length and width.

4. Dave is eight years older than Barry. Three years ago the sum of their ages was 14. How old is each boy now?

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 so that when you multiply the first number by four it is equalled to three times the third number.

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

9. Find 3 consecutive even numbers so that when you multiply the smaller number by five and subtract twenty-four it equals twice the middle number and the larger number combined.

10. Find 3 consecutive numbers which total 66.

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. 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?

Answers

- | | |
|-------------------------------------|-----------------------------|
| 1) Number is 6 | 2) Number is 40 |
| 3) Width is 5 mm
Length is 16 mm | 4) Barry is 6
Dave is 14 |
| 5) Number is 11 | 6) Numbers are 6, 7, & 8 |
| 7) Width is 10 m
Length is 16 m | 8) Numbers are 9 & 18 |
| 9) Numbers are 36, 38, & 40 | 10) Numbers are 21, 22 & 23 |
| 11) Numbers are 8, 10 & 12 | 12) Number is 8 |