Homework

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1 Example

All problems like the following lead eventually to an equation in that simple form.

1.1 Problem 1

Jane spent $42 for shoes. This was $14 less than twice what she spent for a blouse. How much was the blouse?

1.2 Solution

Every word problem has an ”unknown number”.In this problem,it is the price of the blouse. Always let ”x” represent the ”unknown number”.That is, let ”x” answer the question.

1.3 Solution part 2

Let x,then,be how much she spent for the blouse.The problem states that ”This”–that is, $42–was $14 less than two times x.

Here is the Equation: 2x-14= 42
2x=42+14
=56
x=56/2
=28

2 Example 2

There are ”b” boys in the class. This is three more than the number four times the number of girls.

2.1 Solution

Again let ”x” represent the unknown number that you are asked to find: Let X be the number of girls. The problem states that ”This”–b–is three more than 4 times X.

4x+3=b
4x=b-3
x=b-3/4

The solution here is not a number,because it will depend on the value of b. This is a type of a literal equation, which is very common in algaebra.

3 Example 3. The whole is equal to the sum of the parts

The sum of two numbers is 84,and one of them is 12 more than the other. What are the two numbers?

3.1 Solution

In tis problem, we are asked to find two numbers. Therefore, we must let x be one of them. Let x, then,be the first number.

we are told that the other number is 12 more,x+12. the problem states that their sum is 84:
x+x+12=84
The line over x+12 is a grouping symbol called a vinculum. It saves us writing parentheses.
We have: 2x=84-12 =72
x=72/2
x= 36
This is the first number. Therefore the other number is: x+12= 36+12= 48
the sum of 36+48 = 84

4 Example 4

The sum of two consecutive numbers is 37. What are they?

4.1 Solution

Two consecutive numbers are 8 and 9, or 51 and 52. Let x, then, be the first number. Then the number after it is x + 1. The problem states that their sum is 37:

x + x + 1= 37
2x = 37-1
= 36
x = 36 / 2
= 18
The two numbers are 18 and 19.

5 Example 5

One number is 10 more than another. The sum of twice the smaller plus three times the larger,is 55. What are the two numbers?

5.1 Solution

Let x be the smaller number.

Then the larger number is 10 more: x + 10
The problem states:
2x + 3(x + 10)= 55
That implies...
2x + 3x + 10 = 55 . Lesson 14
5x = 55 - 30 = 25

x = 5
That's the smaller number.The larger number is 10 more:15

6 Example 6

Divide $80 among three people so that the second will have twice as much as the first, and the third will have $5 less than the second.

6.1 Solution

Again qwe are asked to find one more number. We must begin by letting x be how much the first person gets.

Then the second gets twice as much : 2x.
and the third gets $5 less than that: 2x-5 .
Their sum is $80:
x + 2x + 2x - 5 = 80
5x = 80 + 5
x = 85 / 2
= 17
This is how much the first person gets. Therefore the second gets:
2x = 34 .
and the thirs gets
2x - 5 = 29 .
The sum of 17, 34, and 29 is in fact 80.