

# Solving Problems In Arithmetic Methods

Usmonov Makhsud

Tashkent University of Information Technologies. Karshi branch 3rd year student

+99891 947 13 40

*maqsudusmonov22@gmail.com*

**Abstract:** *This article provides examples and problems related to solving problems in arithmetic methods, which is one of the most important topics in mathematics. It is necessary to determine from the condition of the problem what unknown and arithmetic operations can be found on the data given in the analysis of the question. Assuming that the unknown is given data, it is necessary to separate the two interconnected data, to determine the unknown that can be found, as well as the corresponding arithmetic operation, and so on. This process continues until an action is identified that leads to the creation of an unknown.*

**Keywords:** Arithmetic solution of text problems, method of comparing the conditions of the problem with the result, the method of estimation.

## INTRODUCTION

### 1. Goals and objectives of the topic.

Solving textual problems arithmetically is a complex activity, the content of which depends on both the problem and the skill of the problem solver. However, it can be divided into several stages.

1. Explain and analyze the content of the problem.
2. Search for and develop a problem-solving plan.
3. Execute the solution plan. Express a conclusion about the fulfillment of the requirement of the problem (answer the question of the problem).
4. Check the solution and correct any errors. Expressing a definitive conclusion about whether to comply with a request for an issue or answer a question.

It should be noted that the steps outlined in the problem-solving process do not have strict boundaries and are not always fully implemented.

If specific questions on the text are asked and answered, is it possible to understand the content of the issue, to distinguish its condition and requirement?

1. What is this issue about?
2. What is required to find in the matter?
3. What do the words "all this time" mean?
4. What is known about the actions of each of its participants in the matter?
5. What is unknown about the issue?
6. What is sought: number, value of size, type of relationship?

1- masala. The tourist traveled the train at 56 speeds for 6 hours. After that, he had to walk four more times. How many kilometers did he have to travel in total?

2- masala. 600 apricot and 400 apple seedlings were brought for planting. They were lined up. The number of rows of apricots is 5 times more than the number of apples. How many rows of apricots and apples are there? There can be 10 rows of apples and 15 rows of apricots.

3- masala. A truck departed from town at 60 mph. After 2 hours, a car with speed from 90 to A followed him. How many kilometers can the car reach point A from point A?

4- masala. One side of the rectangular garden is 10 m larger than the other. This garden needs to be fenced off. If it is known that the surface area of the yard is 1200 m<sup>2</sup>, determine the length of the wall.

### METHODS

1- masala. The tourist traveled the train at 56 speeds for 6 hours. After that, he had to walk four more times. How many kilometers did he have to travel in total?

Y e c h i s h. Here is a quote from the commenter: "It is known that a tourist travels at 56 speeds for 6 hours. Based on this information, you can find the distance traveled by the tourist. All you have to do is increase the speed over time. Knowing the distance traveled and the remaining distance being 4 times the distance covered, you can find out what the remaining distance is. To do this, multiply the distance by 4. Knowing how many miles the tourist has walked and how many more he has to walk, he can find the parts of the bow and the whole bow. Thus, with the first operation, the distance traveled by the tourist on the train is found, with the second operation, the remaining distance covered by the tourist is found, and with the third operation, the entire distance is found.

When analyzing an issue from the point of view of the question, it is important to pay attention to the question and determine what is sufficient to know in order to answer the question. It is important to pay attention to the circumstances of the case and determine whether the necessary information is available. Then a plan is made. In this case, the feedback is reversed.

The analysis of these issues is as follows:

It is necessary to find the whole point in the matter. We found that the whole bow consists of two parts. So, to meet the requirements of the issue, it is enough to know how many kilometers the tourist has traveled and how many more kilometers he has to travel. Neither is known. It is enough to know the time and speed of the tourist to find the destination. Masalada bu maium. Multiply the speed by the time to find the arc. Multiply the last one by 4 and find the remaining one sh can. So you can find the first one, then the rest, and then you can add the whole way.

The test is the final stage of the solution, which determines whether the solution is correct or incorrect.

Based on a number of mental or practical activities, the review should conclude that "the issue has been resolved correctly (incorrectly) because ...".

There are several ways to help determine if a problem is solved correctly or incorrectly.

1. Approximate method. The essence of this method is to predict the accuracy of the solution with some degree of accuracy. The approximate method only gives a clear answer to the question "Is the solution to the problem correct?" Only if the result obtained in solving the problem does not correspond to the predicted result.

Using this method, it is shown how to conduct feedback when examining the solution of the following problems:

There is 5 m of fabric in one section and 7 m of such fabric in the other. If you paid 36,000 soums for both pieces, how much will each piece cost?

Y e c h i s h. Initially, based on the analysis of the content of the issue, it was determined that the price of each piece of fabric is less than 36 soums, and the second piece is cheaper than the first. Performing these calculations  $5 + 7 = 12$  (m),  $36:12 = 3$  (soums), it is determined that one piece of fabric is actually less than 36 soums and the second piece is more expensive than the first. The result is consistent with the predicted result, apparently the problem is solved correctly.

It will be continued and as a result of solving this problem we will get: the first part costs 25 soums, and the second part costs 21 soums. Comparing this result with the predicted results, we get that each piece is cheaper than 36 soums, but the second part is cheaper than the first. So, something went wrong in the solution and the result was wrong. The calculations are checked first to find the error. If an error is found in the calculation, then the solution can be repeated. It is possible to compare each action with the conditions of the problem and check its meaning, whether the action was chosen correctly or incorrectly.

2. A method of comparing the conditions of the problem with the result obtained. The essence of this method is that the result obtained is included in the text of the issue, and on the basis of feedback it is determined whether there is a conflict.

2- masala. 600 apricot and 400 apple seedlings were brought for planting. They were lined up. The number of rows of apricots is 5 times more than the number of apples. How many rows of apricots and apples are there? There can be 10 rows of apples and 15 rows of apricots.

Y e c h i s h. Instead of answering the questions in the question, we read the text of the question: 600 apricot and 400 apple seedlings were brought for planting. They were lined up. The number of apricots planted was 5 more than the number of apples planted. There were 15 rows of apricots and 10 rows of apples.

We'll see if there are any inconsistencies in this text. For example, we consider this. The condition is that the row of apricots planted will be 5 more than the row of apples planted. There are 15 rows of apricots and 10 rows of apples. The number 15 is greater than 10 by 5. So, this attitude is appropriate.

In the case, we check the condition that the number of trees in each row is equal. To do this, determine the number of apricots in a row and the number of apples in a row, 600: 15 = 40, 400: 10 = 40. This relationship is also fulfilled.

All existing relationships were examined and found to be free of discrepancies. So, the problem is solved correctly.

3. Solve the problem in different ways. Suppose there is a solution to the problem in some way. If the same result is obtained when solving it in another way, then it is possible to conclude that the problem was solved correctly.

3- masala. A truck departed from town at 60 mph. After 2 hours, a car with speed from 90 to A followed him. How many kilometers can the car reach point A from point A?

Y e c h i s h. Solve this problem arithmetically:  $90 - 60 = 30$ ,  $60 \cdot 2 = 120$  (km),

$120: 30 = 4$  (hours),  $90 \cdot 4 = 360$  (km).

A v o b: The car reaches the truck at point 360 km from point A.

When solving any problem algebraically, after analyzing the content of the problem, the unknown is selected, marked with a letter, and then on the basis of the separated link in the content of the problem are formed two expressions related to equality, which is to write the corresponding equation. allows The roots found as a result of solving the equation can answer the question of the problem at once.

4- masala. One side of the rectangular garden is 10 m larger than the other. This garden needs to be fenced off. The face of a backyard area If it is 1200 m<sup>2</sup>, determine the length of the wall.

Solution. In terms of matter, one side of a rectangle is 10 meters larger than the other, and the face is 1,200 square meters. It is necessary to determine the perimeter of this rectangular area.

If the lengths of the sides of a rectangle are unknown, its perimeter can be found. Let x m be the length of one side. In this case (x + 10) m is the length of the second side. The face of a rectangle is its sides

186 Since it can be expressed in terms of the lengths of the www.ziyouz.com library, the equation  $x \cdot (x + 10) = 1200$  is formed.

According to the problem, the value of x must be a positive number. The equation satisfies only the first root  $x = 30$ . This means that one side of a rectangular area is 30 m long, the other side is 40 m long, and the perimeter is  $P = 2x + 2(x + 10)$  m.

The check can be performed by comparing the condition of the problem with the result found. To do this, the text of the question is summed up as follows: "A field with a rectangular shape, 30 m long on one side and 10 m long on the first side, is given. This yard needs to be fenced off. The length of the continuation is 140 m, and the area of the garden area is 1200 m<sup>2</sup>.

The text is checked for any inconsistencies. Since one side of a right rectangle is 30 m long and the perimeter is 140 m, the length of the other side of it is 40 m. Knowing the lengths of the sides, one can find the face of a right rectangle:  $30 \cdot 40 = 1200$  m<sup>2</sup>. There is no contradiction in the resulting text. Hence, the result found satisfies the condition of the matter.

## **RESULTS**

When solving any problem algebraically, after analyzing the content of the problem, the unknown is selected, marked with a letter, and then on the basis of the separated link in the content of the problem are formed two expressions related to equality, which is to write the corresponding equation. allows The roots found as a result of solving the equation can answer the question of the problem at once.

Re-expression is the removal of redundant information, the replacement of certain concepts with appropriate terms, and, conversely, the replacement of certain terms with the meaning of appropriate concepts, reorganizing the text of the problem in a way that is convenient to find a solution. .

One of the most common ways to look for a problem-solving plan using arithmetic is to analyze the problem from the text.

The analysis of the problem in the text can take the form of a chain of feedback, which can begin with both the condition of the problem and its questions.

## **DISCUSSION**

Approximate method. The essence of this method is to predict the accuracy of the solution with some degree of accuracy. The approximate method only gives a clear answer to the question "Is the solution to the problem correct?" Only if the result obtained in solving the problem does not correspond to the predicted result.

A method of comparing the conditions of the case with the result obtained. The essence of this method is that the result obtained is included in the text of the issue, and on the basis of feedback it is determined whether there is a conflict.

It is necessary to determine from the condition of the problem what unknown and arithmetic operations can be found on the data given in the analysis of the question. Assuming that the unknown is given data, it is necessary to separate the two interconnected data, to determine the unknown that can be found, as well as the corresponding arithmetic operation, and so on. This process continues until an action is identified that leads to the creation of an unknown.

## **CONCLUSION**

Solve the problem in different ways. Suppose there is a solution to the problem in some way. If the same result is obtained when solving it in another way, then it is possible to conclude that the problem was solved correctly.

In understanding the content of the problem and creating a basis for the search for a solution to the problem, the re-expression of the text of the problem is a great help in replacing the given expression of the situation, all relations with another expression. This tool is especially effective for breaking text into meaningful parts.

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