



Kurikulum
Merdeka

STUDENTS WORKSHEET

Name :

Absence number :

Class :

System of Linear Equations in Two Variables

(40 Minutes)

Through the following activity, you will be guided to create a mathematical model in the form of a system of linear equations and solve real-life problems related to systems of linear equations.



LET'S OBSERVE!

Look and observe the following problem!



In Sukomakmur Village, there is a football field in the shape of a rectangle with a perimeter of 42 m. The difference between the length and width of the football field is 9 m. Determine and solve the system of equations to find the length and width of the football field.

Let:

x = length of the football field in meters.

y = width of the football field in meters.

Given that:

- The perimeter of the field is 42 meters, so the first equation:
.....
- The difference between the length and width is 9 meters, so the second equation:

Thus the system equation is:

1. $x + y = \dots\dots\dots$

2. $x - y = \dots\dots\dots$

SUBSTITUTION METHOD

Step 1. Express One Variable in Terms of the Other
From equation (2):

$$\begin{aligned}x - y &= \dots\dots\dots \\x &= y + \dots\dots\dots\end{aligned}$$

Step 2: Substitute into the Other Equation
Substituting $x = y + \dots\dots\dots$ into equation (1)

$$\begin{aligned}x + y &= \dots\dots\dots \\(y + \dots\dots\dots) + y &= \dots\dots\dots\end{aligned}$$

Step 3: Solve for y

$$\begin{aligned}2y + \dots\dots\dots &= \dots\dots\dots \\2y &= \dots\dots\dots \\y &= \dots\dots\dots\end{aligned}$$

Step 4. Find x Using the Value of y

Substituting $y = \dots\dots\dots$ into $x = y + \dots\dots\dots$

$$\begin{aligned}x &= \dots\dots\dots + \dots\dots\dots \\x &= \dots\dots\dots\end{aligned}$$

So the solution to the system of linear equations from the problem is $x = \dots\dots\dots$ and $y = \dots\dots\dots$

Thus, LENGTH = $\dots\dots\dots$ m and WIDTH = $\dots\dots\dots$ m



CONCLUSION

Summarize the steps to solve two-variable linear equation problems using the substitution method

GRAPHICAL METHOD

Step 1. Draw the graph of both equations.

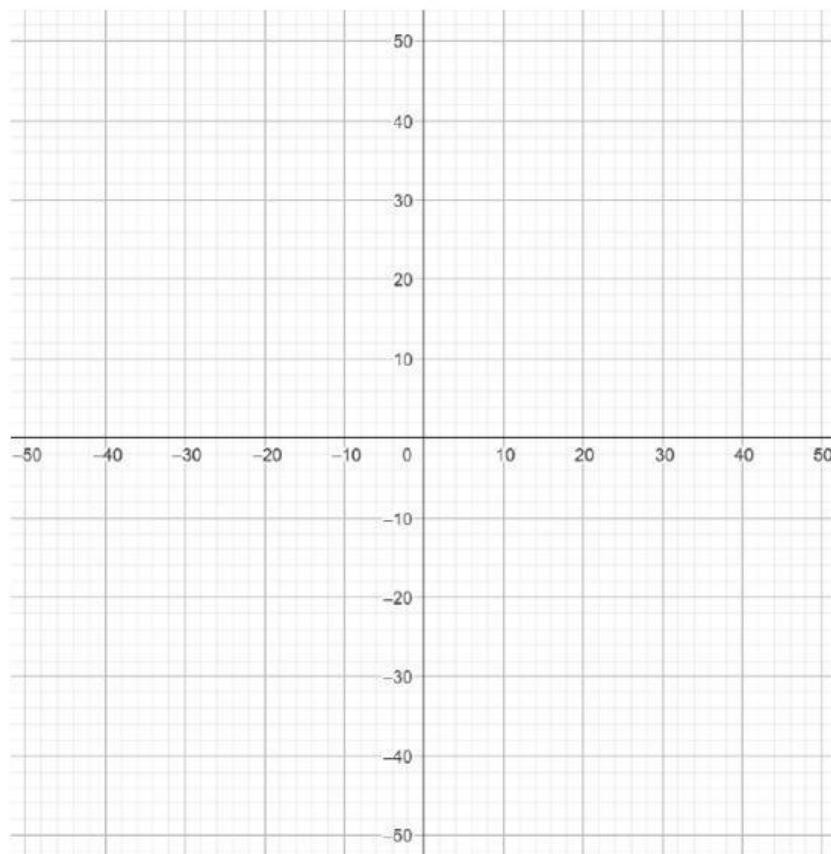
First equation:

x	0	
y		0
(x, y)		

Second equation:

x	0	
y		0
(x, y)		

Draw on the following graph:



Step 2. Estimate the intersection point of the two graphs. The intersection point is at (.....,).

Step 3. Check the intersection point.

Equation (1)

Equation 1 is =

Substitute the intersection point into equation 1 =

Check if the result is correct.

Equation (2)

Equation 2 is =

Substitute the intersection point into equation 2 =

Check if the result is correct.

So the solution to the system of linear equations from the problem is (..... ,)

Thus, LENGTH = m and WIDTH = m



CONCLUSION

Summarize the steps to solve two-variable linear equation problems using the graphical method



LET'S EXPLORE

Solving a system of linear equations with two variables (SPLDV) using the substitution and graphical method in Graspable Math

1. Access the Graspable Math website at <https://activities.graspablemath.com/> or you can scan the following barcode:



2. Click the "Get Started" button until you are directed to the digital whiteboard.
3. Substitution Method:
 - Enter the equations (1) and (2) that you have obtained in the input box.
 - Use the interactive features to substitute values by dragging elements until you find the values of x and y .
4. Graphical Method:
 - Click the "+" icon in the top left corner.
 - Select "Graphing" to display the graph.
 - Enter the equations (1) and (2) that you have obtained in the input box.
 - Observe the graph and find the intersection point, which is the solution to the system of equations.
5. After completing the tasks in Graspable Math, take a screenshot of your work and Input the screenshot results into a pdf file and upload it to the place provided.



LET'S PRACTICE

Do the following practice questions!



A fruit seller has a price list for oranges and apples. He states that the price of 3 kg of oranges is the same as the price of 2 kg of apples. Additionally, it is known that if someone buys 2 kg of oranges and 1 kg of apples, the total amount to be paid is Rp70,000. Based on this information, determine the price of 1 kg of oranges and 1 kg of apples.

Answer: