

7.1 Solving Linear Systems Using Tables



A.1.D, A.1.E,
A.5.C, A.8.B

MATERIALS • pencil and paper

QUESTION How can you use a table to solve a linear system?

A system of linear equations, or linear system, consists of two or more linear equations in the same variables. A solution of a linear system is an ordered pair that satisfies each equation in the system. You can use a table to find a solution to a linear system.

EXPLORE Solve a linear system

Bill and his brother collect comic books. Bill currently has 15 books and adds 2 books to his collection every month. His brother currently has 7 books and adds 4 books to his collection every month. Use the equations below to find the number x of months after which Bill and his brother will have the same number y of comic books in their collections.

$y = 2x + 15$ Number of comic books in Bill's collection

$y = 4x + 7$ Number of comic books in his brother's collection

STEP 1 Make a table

Copy and complete the table of values shown.

x	$y = 2x + 15$	$y = 4x + 7$
0	15	7
1	?	?
2	?	?
3	?	?
4	?	?
5	?	?

STEP 2 Find a solution

Find an x -value that gives the same y -value for both equations.

STEP 3 Interpret the solution

Use your answer to Step 2 to find the number of months after which Bill and his brother have the same number of comic books.

DRAW CONCLUSIONS Use your observations to complete these exercises

- When Bill and his brother have the same number of books in their collections, how many books will each of them have?
- Graph the equations above on the same coordinate plane. What do you notice about the graphs and the solution you found above?

Use a table to solve the linear system.

3. $y = 2x + 3$
 $y = -3x + 18$

4. $y = -x + 1$
 $y = 2x - 5$

5. $y = -3x + 1$
 $y = 5x - 31$