Games, Grids, and Graphs

Leader

Introduce linear equations to describe number patterns.

You will need:

- ❑ Pencil
- ❑ Ruler
- ❑ Coordinate grid paper
- ❑ Plain paper

Do this:

- Play number guessing games with a partner based on simple relationships between pairs of numbers.
- After each guess, show the pair of numbers on a table (Fig.1) where the leader (or 1st player) uses column 1, and the partner "guesses" the correct number to show in column 2.
- Each correct pair of numbers from the table should be located and marked as a point on the grid. (Fig. 2)
- When there are several accepted points on the grid, they should be connected.

3, 9		
2	8	No
4	12	Yes
5	15	Yes
0	0	Yes
1	3	Yes
2	6	Yes

Fig. 1

1. If y is the second number, and x is the first, see if you can write the rule as a number sentence.

   y = _____ x

2. Describe the shape of the graph of points.

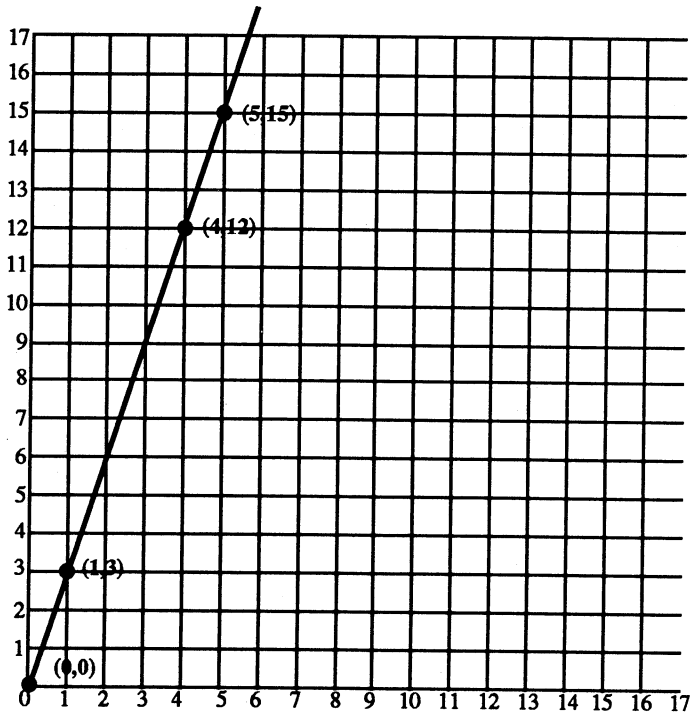
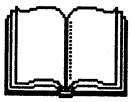


Fig. 2

- Repeat this game with other numbers.

Sample:

7, 9		
x	y	
3	5	Yes
10	12	Yes
0	2	Yes
8	10	Yes
1	3	Yes

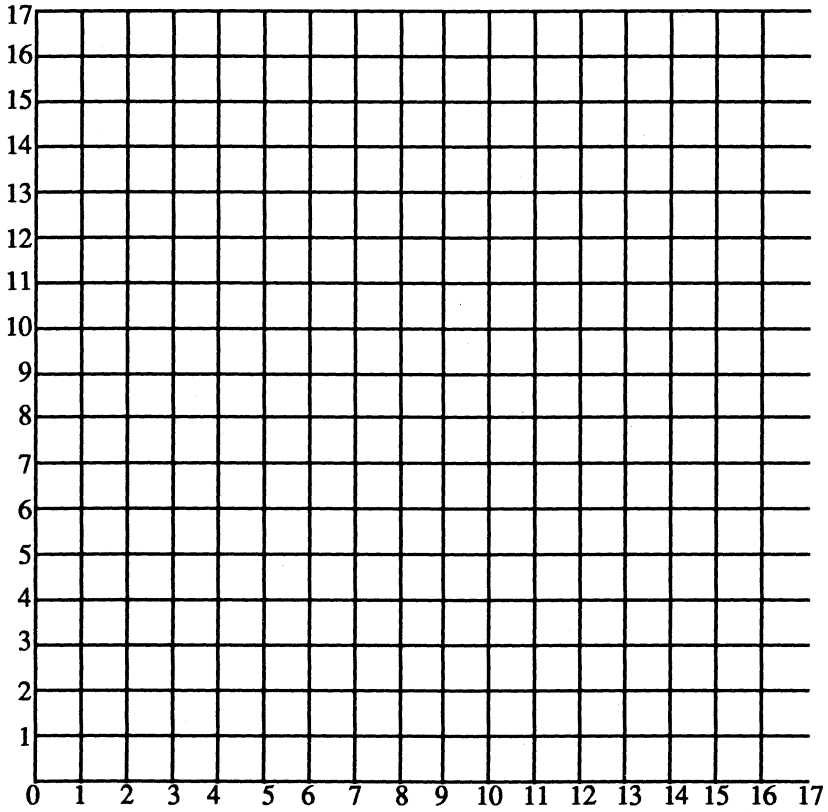


Student_____

Do this:

This activity is a guessing game. It can be called "I am thinking of a number." It goes like this:

- Player 1 (the leader) writes a pair of numbers that are related in a special rule. He shows the numbers to player 2, but he gives no hint of the rule. Example: 3, 9
- On a table record (score card), player 1 writes another number as shown in Figure 1 below, and ask player 2 to guess the second number, and writes it in the table.
- Since the rule is known only to player 1, the correctness of the number written by player 2 must be verified or rejected by player 1.
- The game continues until player 2 has discovered the rule.
- Together, the two players should locate and mark the points on the grid paper, and then connect them.



3, 9		
2	8	No
4	12	Yes
5	15	Yes
0	0	Yes
1	3	Yes
2	6	Yes

Fig. 1

WHAT I FOUND