7-Linear Relations Part I.docx

Wednesday, April 8, 2020 11:15 AM

7-Linear Relations...

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remember these are the letters! x, y, a, b, etc!

LINEAR RELATIONS PART I

- Linear relationship = relationship between 2 variables where constant change in 1 variable produces constant change in the other variable.
- Linear relationships can be expressed 4 different ways:
  - table of values
  - ordered pairs (x,y)
  - graph
  - equation (y=mx+b) more on this later

Eg. 1. You work as a host/hostess at a small restaurant. Each table seats 4 people. But if larger parties come in, you can put these tables together to seat more people at the same (now larger) table. 2 tables stuck together seats 6 people. 3 tables stuck together seats 8 people. 4 tables stuck together seats 10 people.

a. Is this a linear relationship? yes

b. Can you describe the relationship? ↑ table # by 1 = ↑ # of seats by 2

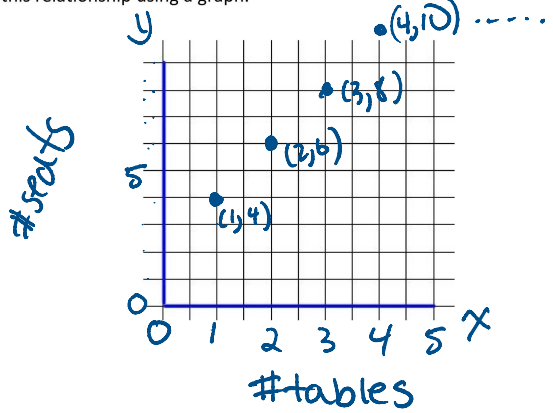
c. Express this relationship using a table of values.

(x) #tables	#seats (y)
1	4
2	6
3	8
4	10

d. Express this relationship using 3 different ordered pairs. (x,y)

(1,4), (3,8), (5,12) ← get this using the pattern!

e. Express this relationship using a graph.



* things to Remember
- label your x & y axis
- use a constant scale on each axis (our x-axis goes up by 1 every 2 lines....)

f. Express this relationship using an equation.

*tricky!

x = # tables
y = # seats

$y = 2x + 2$

Examples of equations that represent linear equations:

a. $x + y = 7$ b. $x = -2y + 5$ c. $3x - 5y = 21$

Examples of equations that are NOT linear equations --- they form curved patterns when graphed.

a. $y = \frac{1}{x}$ b. $y = 3x^2 + 8$ c. $x^2 + y^2 = 16$