

Sec 4.7 – Graphing Linear Relations Notes

1. **Graphing**

On a coordinate grid, it is convention to use the horizontal axis to represent the _____ and the vertical axis to represent the _____.

When the points lie on a straight line, like in the investigation, we say that the relation is _____.

2. **Describing Relations**

The equations from the investigation all show a relationship between two variables. You need to know how to describe a relationship in the following ways:

- 1) _____
- 2) _____
- 3) _____
- 4) _____

Example 1 – John wants to have a birthday party at the movie theatre. He knows that tickets cost \$8 per person but the movie theatre will give him \$6 off his total bill since it is his birthday.

a) If we let C represent the total cost and n represent the number of friends, write a formula John could use to calculate the total cost of his birthday.

b) Create a table of values for the relation.

n	C

c) Graph the relation.



d) Describe the relationship between the variables in the graph.

Note: We do not join the points since we cannot have 1.3 of a person. Therefore, the data listed in the example above are called _____ since the numbers between the points are not meaningful in this problem.

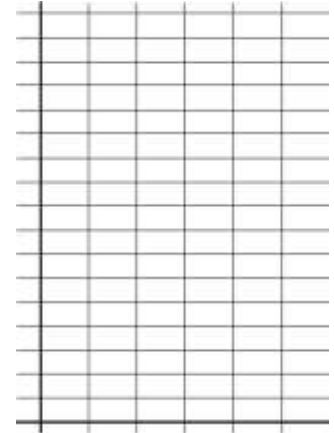
Example 2 – At the Pizza Factory, an extra-large pizza costs \$13 plus \$2 per additional topping.

a) If we let C represent the total cost of the pizza and n represent the number of additional toppings, write a formula to calculate the total cost of an extra-large pizza.

b) Create a table of values for the relation.

n	C

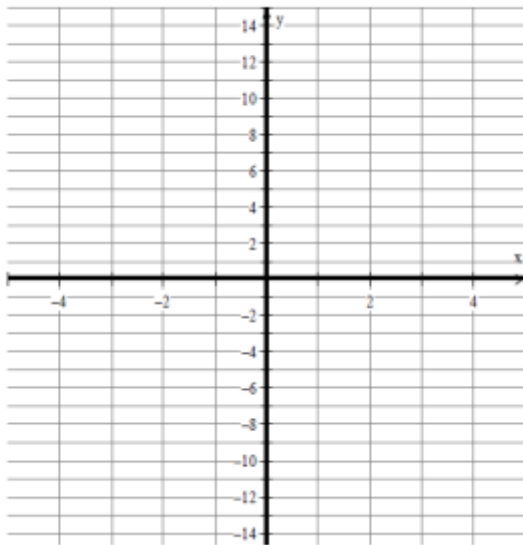
c) Graph the relation.



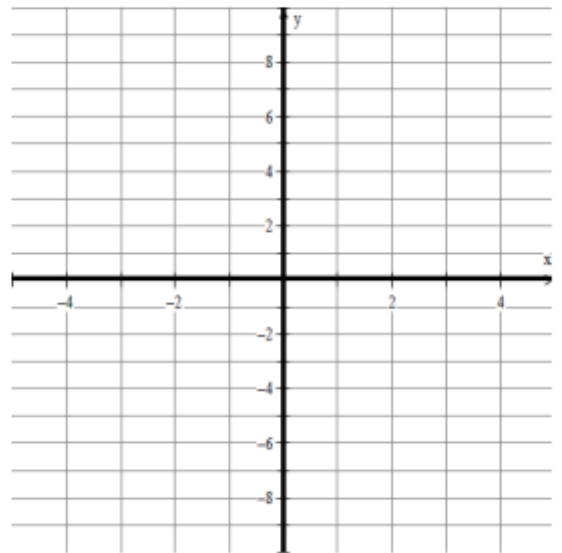
d) Describe the relationship between the variables in the graph.

3. Practice – Graph each relation for integer values of x from -4 to 4 .

a) $y = 3x + 2$



b) $y = -2x - 1$



Cooking the Notes

You now know several ways to represent a relation (table of values, equation, graph, words). Which way tells you most about the relation? Explain why you think so.