

Learning activity 2 answers

True/False answers

1. The origin is the point where a graph starts.

1. True
2. False

The origin is where the horizontal and vertical axes start, NOT where the graph starts.

2. A graph showing a positive relationship between stock prices and the nation's production means that an increase in stock prices causes an increase in production.

1. True
2. False

A relationship does not necessarily mean that one of the variables causes the other. More intricate econometric tests are necessary to determine causality.

3. If the graph of the relationship between two variables slopes upward to the right, the relationship between the variables is positive.

1. True
2. False

4. Graphing things that are unrelated on one diagram is **NOT** possible.

1. True
2. False

It is, for example, possible to show the number of houses built in Gauteng every year from 2000 to 2015 and the number of ducklings born in Dublin in Scotland every year from 2000 to 2015. It is not clear why anyone would want to do such a thing, but it is certainly possible!

5. The slope of a straight line is calculated by dividing the change in the value of the variable measured on the horizontal axis by the change in the value of the variable measured on the vertical axis.

1. True
2. False

The slope of a straight line is calculated by dividing the change in the value of the variable measured on the **vertical** axis by the change in the value of the variable measured on the **horizontal** axis.

6. For a straight line, if a large change in y is associated with a small change in x, the line is steep.

1. True
2. False

7. The slope of a curved line is **NOT** constant.

1. True
2. False

8. *Ceteris paribus* means “everything else changes”.

1. True
2. False

Ceteris paribus means everything else stay the same.

9. Demonstrating how an economic variable changes from one year to the next is best illustrated by a time-series graph.

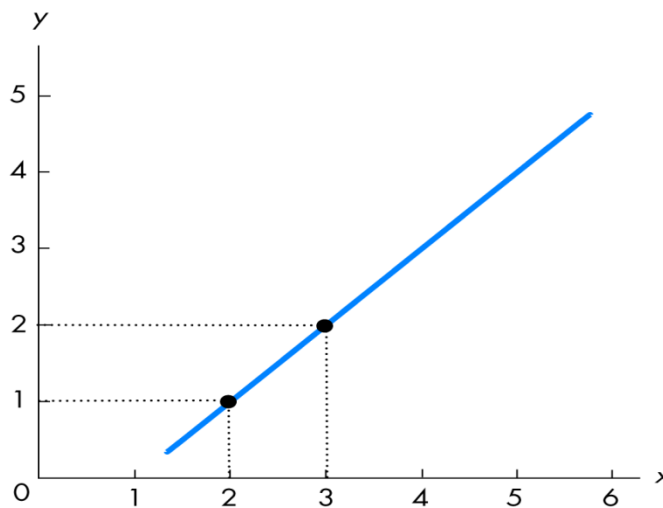
1. True
2. False

10. If variables x and y move up and down together, they are positively related.

1. True
2. False

Review answers

1. If the total amount of goods produced in South Africa has generally increased, on a time-series graph, illustrating the total amount produced, you would expect to show **an upward trend**.
2. If the relationship between two variables, x and y, is a vertical line, x and y are **not related**.
3. A linear relationship **always has a constant slope**.
4. Use figure 1 to answer the following questions:



- 4.1 In figure 1, between $x = 2$ and $x = 3$, what is the slope of the line?

The slope equals the change in the variable measured along the vertical axis divided by the change in the variable measured along the horizontal axis, or

$$\frac{(2-1)}{(3-2)} = \frac{1}{1} = 1$$

- 4.2 How does the slope of the line between $x = 4$ and $x = 5$ compare with the slope between $x = 2$ and $x = 3$?

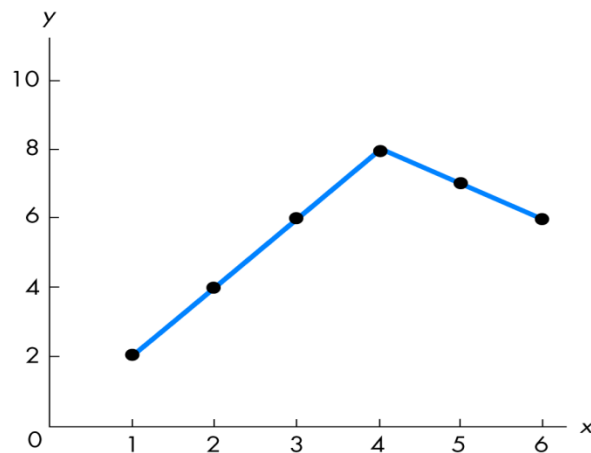
The figure shows a straight line. The slope of a straight line is constant, so the slope between $x = 4$ and $x = 5$ is the same as the slope between $x = 2$ and $x = 3$.

5. Use the data in table 1 to answer the following questions.

Table 1

x	y
1	2
2	4
3	6
4	8
5	7
6	6

- 5.1 Graph the relationship between x and y.



- 5.2 Over what range of values for x is this relationship positive? Over what range is it negative?

The relationship between x and y changes when x is 4. The relationship is positive between x = 1 and x = 4. Between x = 4 and x = 6, the relationship is negative.

- 5.3 Calculate the slope between x = 1 and x = 2.

The slope equals $\Delta y / \Delta x$ or, in this case, between x = 1 and x = 2, the slope is

$$\frac{(2-4)}{(1-2)} = \frac{-2}{-1} = 2$$

- 5.4 Calculate the slope between x = 5 and x = 6.

Between x = 5 and x = 6, the slope is equal to $\frac{(7-6)}{(5-6)} = \frac{1}{-1} = -1$