

Chapter 01A - Applying Graphs to Economics

1. An upward-sloping line or curve is used to illustrate:

- a. a direct relationship.
- b. an inverse relationship.
- c. two unrelated variables.
- d. the *ceteris paribus* assumption.

ANSWER:

a

2. Suppose two variables are directly related. If one variable rises, then the other variable:

- a. also rises.
- b. falls.
- c. remains unchanged.
- d. reacts unpredictably.

ANSWER:

a

3. Which of the following pairs is the most likely to exhibit a direct relationship?

- a. The price of gasoline and the amount of gasoline that people purchase.
- b. Annual income and new vehicle purchases.
- c. Outdoor temperature and heating oil sales.
- d. Washing machine purchases and trips to the laundromat.

ANSWER:

b

4. A direct relationship is expressed graphically as a:

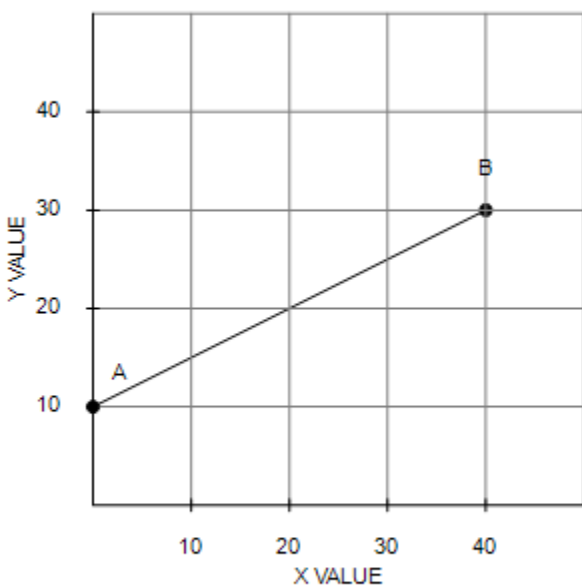
- a. positively sloped line or curve.
- b. negatively sloped line or curve.
- c. horizontal line.
- d. vertical line.

ANSWER:

a

Exhibit 1A-1 Straight line

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5. In Exhibit 1A-1, as X increases along the horizontal axis, from point A to point B on the line, the Y values:
- increase so the relationship between X and Y is direct.
 - decrease so the relationship between X and Y is inverse.
 - remain unchanged so the relationship between X and Y is independent.
 - change so the relationship between X and Y is variable.

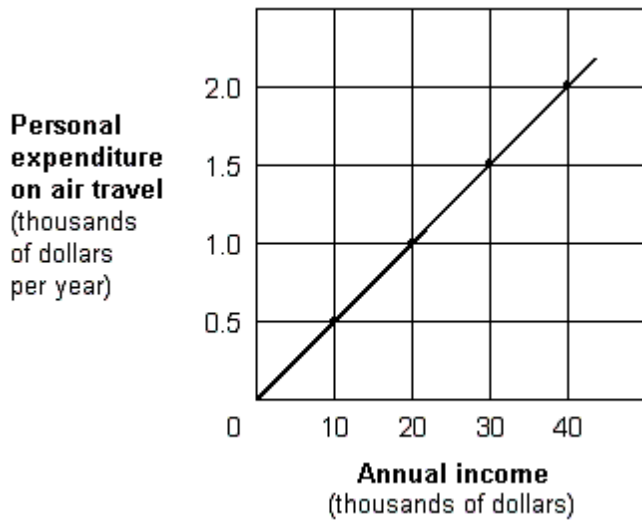
ANSWER: a

6. If the amount of lemonade purchased and the outdoor temperature are directly related, then:
- when temperature rises, the amount of lemonade purchased rises.
 - a graph with this relationship would be negatively sloped.
 - sellers of lemonade hope for cooler temperatures.
 - the slope of the line reflecting this relationship will be 0.

ANSWER: a

Exhibit 1A-7 Straight line relationship

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7. According to Exhibit 1A-7, the relationship between annual income and air-travel expenditures is:

- a. direct.
- b. inverse.
- c. complex.
- d. independent.

ANSWER:

a

8. Distinguish a direct and an inverse relationship. Provide an example of each type of relationship.

ANSWER: A direct relationship between two variables means an increase in the value of the independent variable will cause an increase in the value of the dependent variable; and vice versa. An example would be the relationship between the selling price of a good and the amount of the good put up for sale by producers. An inverse relationship between two variables means an increase in the value of the independent variable will cause a decrease in the value of the dependent variable; and vice versa. An example would be the relationship between the price of a good and the amount purchased.

9. Graphically express a direct and an inverse or negative relationship. What could cause a shift in a line or curve expressing a relationship between two variables?

ANSWER: A direct relationship will slope upward; it will have a positive slope. An inverse relationship will slope downward; it will have a negative slope. A change in some relevant variable other than those listed on the vertical or horizontal axis must change in order to shift a line or curve expressing a relationship between two variables.

10. A direct relationship exists when:

- a. there is no association between two variables.
- b. one variable increases and there is no change in the other variable.
- c. one variable increases and the other variable increases.
- d. one variable increases and the other variable decreases.

ANSWER:

c

11. Suppose two variables are inversely related. If one variable rises, then the other variable:

- a. also rises.

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- b. falls.
- c. remains unchanged.
- d. reacts unpredictably.

ANSWER:

b

12. If the amount of time spent procrastinating and the performance on an exam are inversely related, then

- a. more procrastination leads to lower exam grades.
- b. more procrastination leads to higher exam grades.
- c. a graph with this relationship would be positively sloped.
- d. the slope of the line reflecting this relationship will be 0.

ANSWER:

a

13. An inverse relationship exists when:

- a. there is no association between two variables.
- b. one variable increases and there is no change in the other variable.
- c. one variable increases and the other variable increases.
- d. one variable increases and the other variable decreases.

ANSWER:

d

14. Which of the following pairs is the most likely to exhibit an inverse relationship?

- a. The amount of time you study and your grade point average.
- b. People's annual income and their expenditure on personal computers.
- c. Baseball players' salaries and their batting averages.
- d. The price of a concert and the number of tickets people purchase.

ANSWER:

d

15. When an inverse relationship is graphed, the resulting line or curve is:

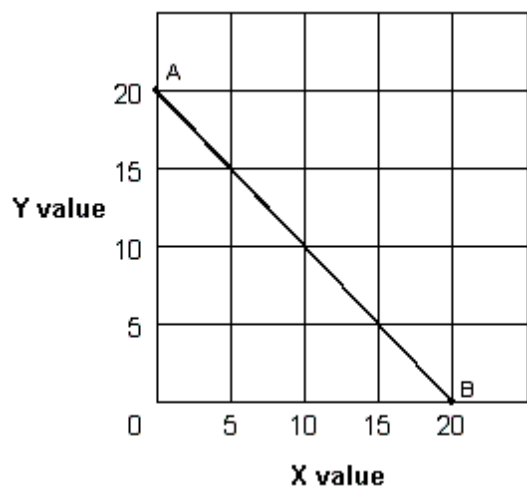
- a. horizontal.
- b. vertical.
- c. upward-sloping.
- d. downward-sloping.

ANSWER:

d

Exhibit 1A-3 Straight line

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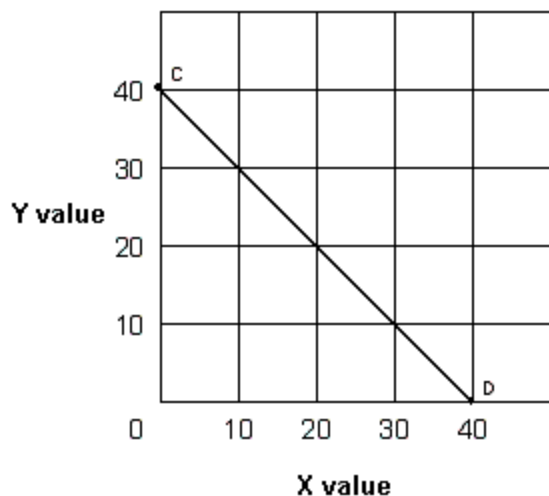
16. Straight line AB in Exhibit 1A-3 is a downward sloping line illustrating:

- a direct relationship between X and Y.
- an inverse relationship between X and Y.
- X and Y are unrelated variables.
- the *ceteris paribus* assumption.

ANSWER:

b

Exhibit 1A-5 Straight line



17. In Exhibit 1A-5, as X increases along the horizontal axis, from point C to point D on the line, the Y values:

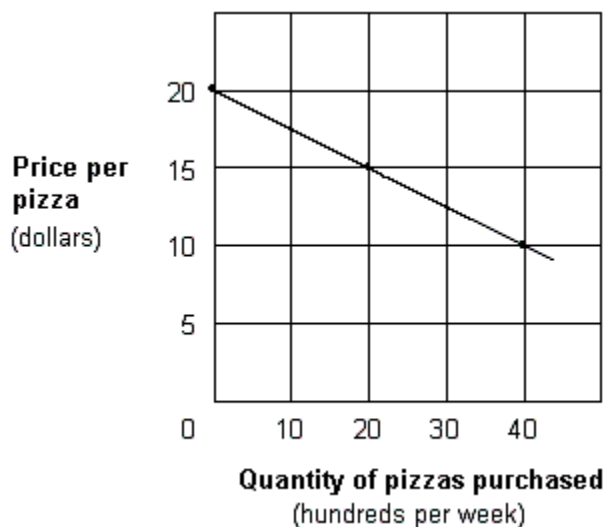
- increase so the relationship between X and Y is direct.
- decrease so the relationship between X and Y is inverse.
- remain unchanged so the relationship between X and Y is independent.
- change so the relationship between X and Y is variable.

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ANSWER:

b

Exhibit 1A-8 Straight line relationship



18. According to the Exhibit 1A-8, the relationship between the price and quantity purchased of pizza is:

- a. direct.
- b. inverse.
- c. complex.
- d. independent.

ANSWER:

b

19. Measured between two points on a curve, the ratio of the change in the variable on the vertical axis to the change in the variable on the horizontal axis is the:

- a. axis.
- b. slope.
- c. dependent curve.
- d. independent curve.

ANSWER:

b

20. Which of the following statements is correct?

- a. Slope is the ratio of the vertical change (the rise or fall) to the horizontal change (the run).
- b. A direct relationship is one in which two variables change in the opposite direction.
- c. An inverse relationship is one in which two variables change in same direction.
- d. An independent relationship is one in which two variables are upward sloping.

ANSWER:

a

21. Which of the following is used to illustrate an independent relationship between two variables?

- a. An upward-sloping curve

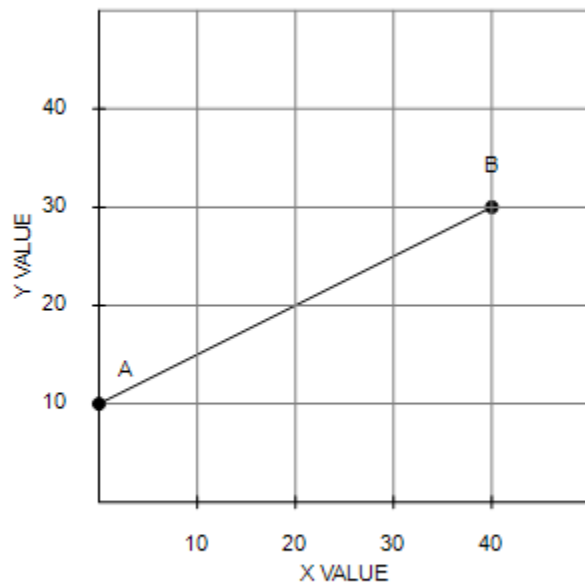
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- b. A downward-sloping curve
- c. A hill-shaped curve
- d. A horizontal or vertical line

ANSWER:

d

Exhibit 1A-1 Straight line



22. In Exhibit 1A-1, the slope of straight line AB is:

- a. positive.
- b. zero.
- c. negative.
- d. variable.

ANSWER:

a

23. As shown in Exhibit 1A-1, the slope of straight line AB:

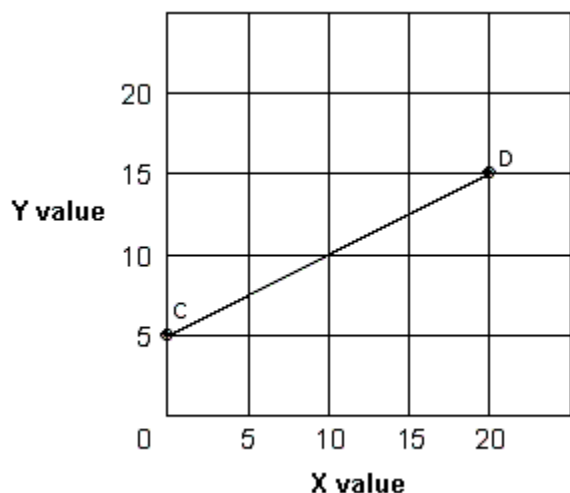
- a. decreases with increases in X.
- b. increases with increases in X.
- c. increases with decreases in X.
- d. remains constant with changes in X.

ANSWER:

d

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Exhibit 1A-2 Straight line



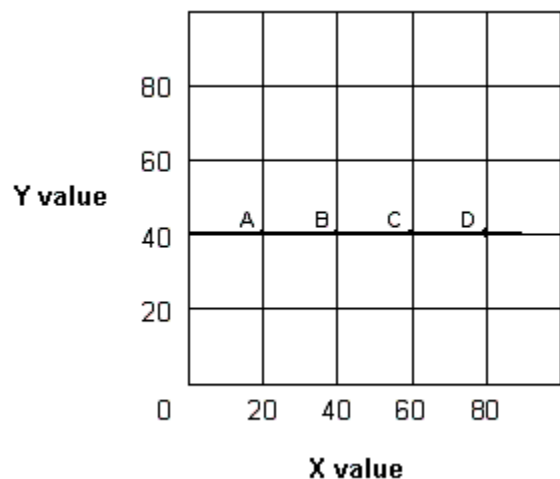
24. In Exhibit 1A-2, explain the slope of straight line CD.

- As the X value increases by 20, the Y value increases by 5, so the slope is 4.
- As the Y value increases by 5, the X value increases by 20, so the slope is $1/4$.
- As the X value increases by 10, the Y value increases by 5, so the slope is 2.
- As the Y value increases by 5, the X value increases by 10, so the slope is $1/2$.

ANSWER:

d

Exhibit 1A-4 Straight line



25. Straight line A-D in Exhibit 1A-4 shows that:

- as the X value increases by 80, the Y value increases by 40 so the slope is 2.
- as the Y value increases by 40, the X value increases by 80 so the slope is $1/2$.

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- c. increasing values for X do not affect the value of Y.
- d. increasing values for Y do not affect the value of X.

ANSWER:

C

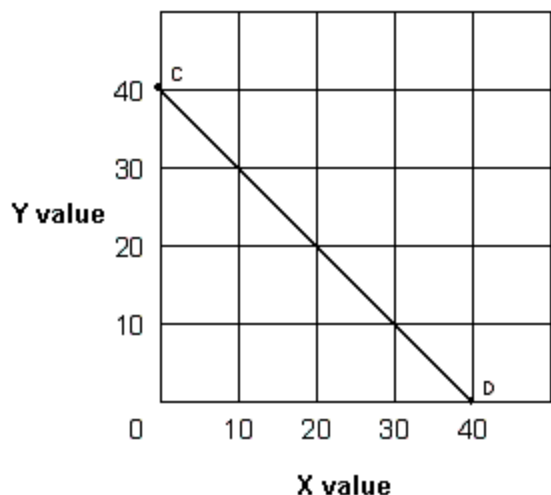
26. In Exhibit 1A-4, as X increases along the horizontal axis, corresponding to points A-D on the line, the Y value remains unchanged at 40 units. The relationship between the X and Y variables is:

- a. direct.
- b. inverse.
- c. independent.
- d. undefined.

ANSWER:

C

Exhibit 1A-5 Straight line



27. In Exhibit 1A-5, the slope for straight line CD is:

- a. 5.
- b. 1.
- c. -1.
- d. -5.

ANSWER:

C

28. A shift in a curve represents a change in:

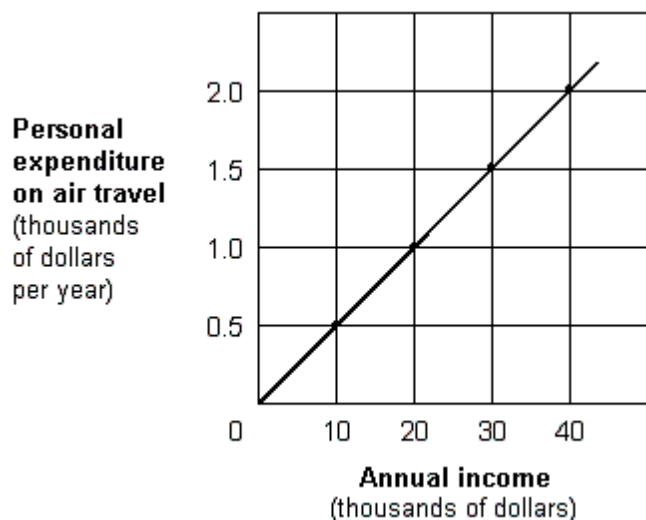
- a. the variable on the horizontal axis.
- b. the variable on the vertical axis.
- c. a third variable that is not on either axis.
- d. any variable that is relevant to the relationship being graphed.

ANSWER:

C

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Exhibit 1A-7 Straight line relationship



29. Which of the following would cause a shift in the relationship shown in Exhibit 1A-7?

- A rise in people's annual income.
- A rise in people's expenditure on air travel.
- A rise in the price of air travel.
- Nothing will shift the line in the graph.

ANSWER:

c

30. Using the relationship shown in Exhibit 1A-7, suppose the price of air travel increases. How would you revise the graph to show this change?

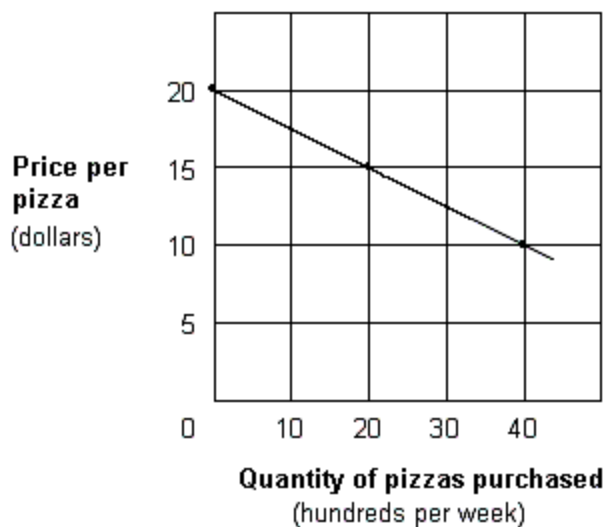
- Draw a new point on the graph upward and to the left.
- Draw a new point on the graph downward and to the right.
- Draw a new line on the graph.
- Change the current line so that its slope is flatter.

ANSWER:

c

Exhibit 1A-8 Straight line relationship

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31. Which of the following would cause a shift in the relationship shown in Exhibit 1A-8?

- a. A fall in household incomes.
- b. A fall in the price of pizza.
- c. A fall in the quantity of pizza that people wish to purchase.
- d. A rise in the price of pizza.

ANSWER:

a

32. For the relationship shown in Exhibit 1A-8, suppose the price of hamburgers increases and hamburgers are a substitute for pizza. What change would occur on the graph?

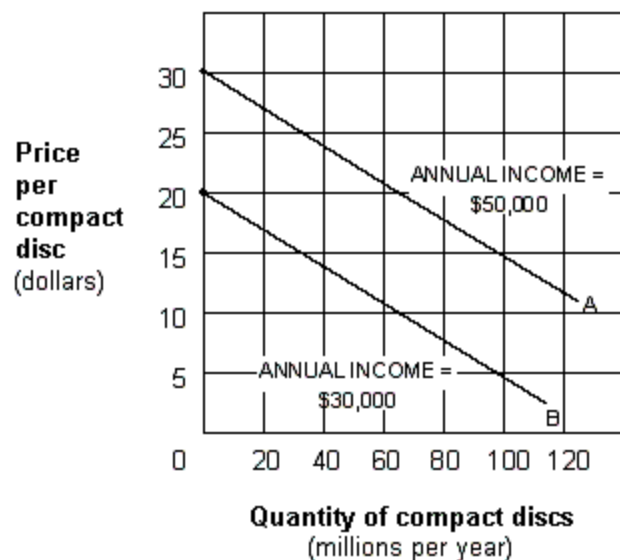
- a. There will be a movement upward and to the left along the curve.
- b. There will be a movement downward and to the right along the curve.
- c. The curve will shift.
- d. The slope of the curve will become steeper.

ANSWER:

c

Exhibit 1A-9 Multi-curve graph

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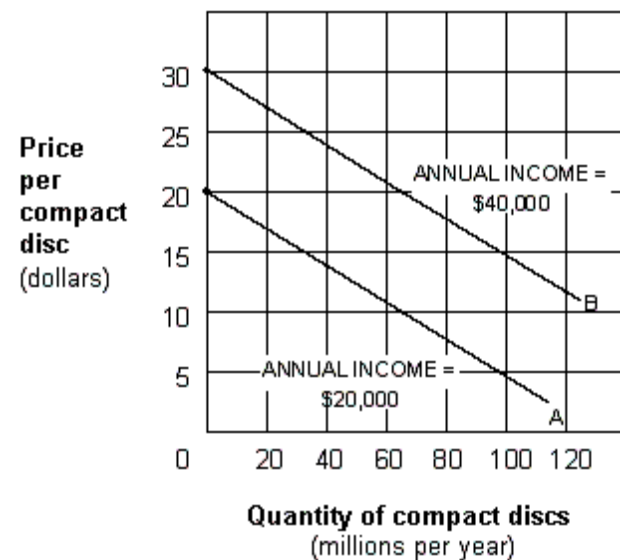
33. Exhibit 1A-9 represents a three-variable relationship. As the annual income of consumers falls from \$50,000 (line A) to \$30,000 (line B), the result is a:

- rightward movement along each curve.
- leftward movement along each curve.
- leftward shift from curve A to curve B.
- rightward shift from curve B to curve A.

ANSWER:

C

Exhibit 1A-10 Multi-curve graph



34. Exhibit 1A-10 represents a three-variable relationship. As the annual income of consumers rises from \$20,000 (line A) to \$40,000 (line B), the result is a:

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- a. rightward movement along each curve.
- b. leftward movement along each curve.
- c. leftward shift from curve B to curve A.
- d. rightward shift from curve A to curve B.

ANSWER:

d

35. Assume there is a relationship between two variables and the other-variables-held-constant assumption (*ceteris paribus*) is relaxed. We would expect that the line representing this relationship would:

- a. change from inverse to direct.
- b. change from direct to inverse.
- c. have a greater number of data points.
- d. change its location.

ANSWER:

d