

Chapter 02: Appendix - Graphs in Economics

Multiple Choice

1. The point at which the axes of a graph intersect is called the:

- a. slope.
- b. origin.
- c. graph.
- d. intercept.

ANSWER: b

2. The _____ of a curve shows the point at which the curve intersects an axis.

- a. slope
- b. steepness
- c. intercept
- d. origin

ANSWER: c

3. If two variables are positively related, on a graph they will always be represented by a:

- a. line or curve that slopes downward.
- b. straight line.
- c. horizontal line.
- d. line or curve that slopes upward.

ANSWER: d

4. If two variables are negatively related, they will always be represented by a:

- a. line or curve that slopes downward.
- b. straight line.
- c. horizontal line.
- d. line or curve that slopes upward.

ANSWER: a

5. If two variables are negatively related:

- a. as one goes up in value, the other must go up in value, too.
- b. as one goes up in value, the other must go down in value.
- c. there is no relationship between the two.
- d. one variable is always the reciprocal of the other.

ANSWER: b

6. If two variables are positively related:

- a. as one goes up in value, the other must go up in value, too.
- b. as one goes up in value, the other must go down in value.
- c. there is no relationship between the two.
- d. one variable is always the reciprocal of the other.

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ANSWER: a

7. The relation between two variables that move in the same direction is said to be:

- a. independent.
- b. neutral.
- c. positive.
- d. indirect.

ANSWER: c

8. The relation between two variables that move in opposite directions is said to be:

- a. independent.
- b. positive.
- c. direct.
- d. negative.

ANSWER: d

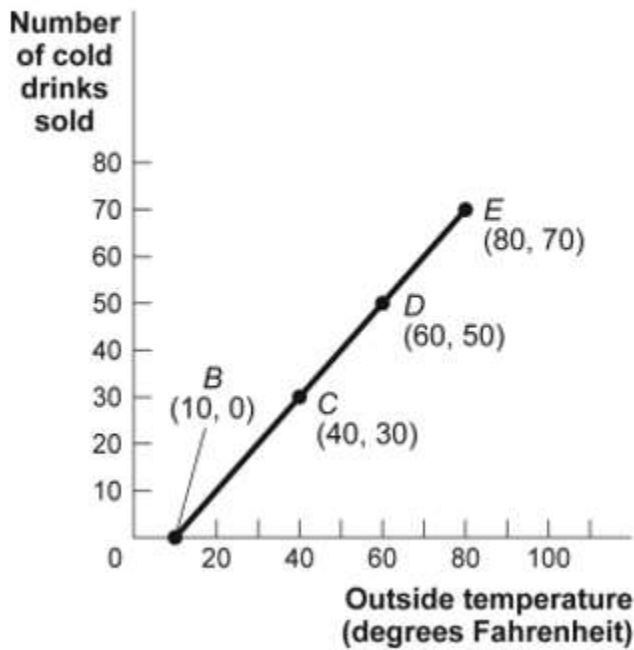
9. On a two-dimensional graph representing two variables:

- a. a positive slope of a curve means the variables are negatively related.
- b. a negative slope of a curve means the two variables are positively related.
- c. a line that is horizontal has a zero slope.
- d. a line that is vertical has a zero slope.

ANSWER: c

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Figure: Cold Drinks Sold and Temperature



10. (Figure: Cold Drinks Sold and Temperature) Use Figure: Cold Drinks Sold and Temperature. If we move from point C to point E in the figure, the outside temperature has _____ degrees and the number of cold drinks sold has _____.

- a. decreased by 30; decreased by 30
- b. increased by 20; increased by 20
- c. increased by 30; increased by 30
- d. increased by 40; increased by 40

ANSWER: d

11. (Figure: Cold Drinks Sold and Temperature) Use Figure: Cold Drinks Sold and Temperature. If we move from point B to point C in the figure, the outside temperature has _____ degrees and the number of cold drinks sold has _____.

- a. decreased by 30; decreased by 30
- b. increased by 20; increased by 20
- c. increased by 30; increased by 30
- d. increased by 40; increased by 40

ANSWER: c

12. (Figure: Cold Drinks Sold and Temperature) Use Figure: Cold Drinks Sold and Temperature. If we move from point C to point D in the figure, the outside temperature has _____ degrees and the number of cold drinks sold has _____.

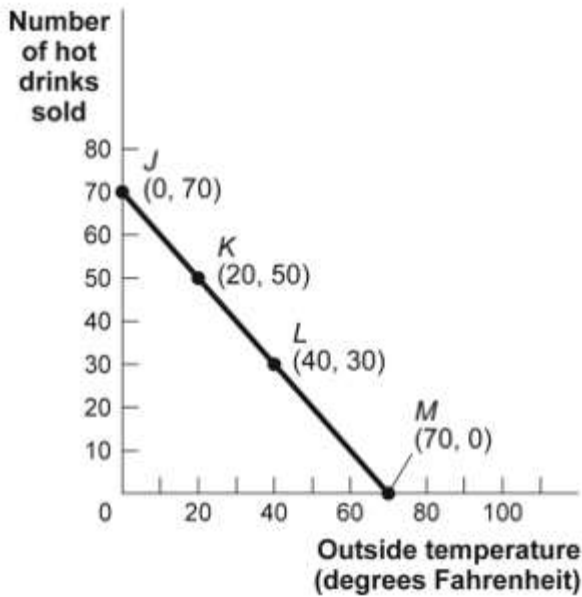
- a. decreased by 30; decreased by 30

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- b. increased by 20; increased by 20
- c. increased by 30; increased by 30
- d. increased by 40; increased by 40

ANSWER: b

Figure: Hot Drinks Sold and Temperature



13. (Figure: Hot Drinks Sold and Temperature) Use Figure: Hot Drinks Sold and Temperature. If we move from point *K* to point *L* in the figure, the outside temperature has _____ degrees and the number of hot drinks sold has _____.
- a. decreased by 30; increased by 30
 - b. increased by 20; decreased by 20
 - c. increased by 30; decreased by 30
 - d. increased by 40; decreased by 40

ANSWER: b

14. (Figure: Hot Drinks Sold and Temperature) Use Figure: Hot Drinks Sold and Temperature. If we move from point *J* to point *L* in the figure, the outside temperature has _____ degrees and the number of hot drinks sold has _____.
- a. decreased by 30; increased by 30
 - b. increased by 20; decreased by 20
 - c. increased by 30; decreased by 30
 - d. increased by 40; decreased by 40

ANSWER: d

15. (Figure: Hot Drinks Sold and Temperature) Use Figure: Hot Drinks Sold and Temperature. If we move from point *L* to point *M* in the figure, the outside temperature has _____ degrees and the number of hot drinks sold _____.

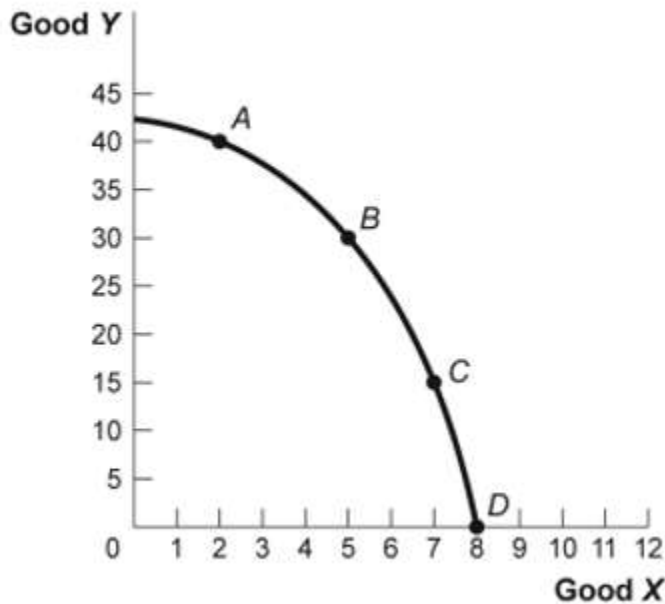
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has _____.

- a. decreased by 30; increased by 30
- b. increased by 20; decreased by 20
- c. increased by 30; decreased by 30
- d. increased by 40; decreased by 40

ANSWER: c

Figure: Good X and Good Y



16. (Figure: Good X and Good Y) Use Figure: Good X and Good Y. If we move from point B to point C in the figure, the x-variable has _____ units and the y-variable has _____ units.

- a. decreased by 2; increased by 15
- b. increased by 2; decreased by 15
- c. decreased by 15; increased by 2
- d. increased by 15; decreased by 2

ANSWER: b

17. (Figure: Good X and Good Y) Use Figure: Good X and Good Y. If we move from point C to point B in the figure, the x-variable has _____ units and the y-variable has _____ units.

- a. decreased by 2; increased by 15
- b. increased by 2; decreased by 15
- c. decreased by 15; increased by 2
- d. increased by 15; decreased by 2

ANSWER: a

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18. In the graph of a curve, the vertical intercept is the:

- a. value of the y -variable when the value of the x -variable is equal to zero.
- b. change in the y -variable between two points divided by the change in the x -variable between those same two points.
- c. value of the y -variable when the value of the slope is equal to zero.
- d. value of the x -variable when the value of the y -variable is equal to zero.

ANSWER: a

19. (Table: Hours Studied and Quiz Score) Use Table: Hours Studied and Quiz Score. The table shows data for students in an economics class. If we were to graph these data and draw a line through the points, we would choose _____ to be the independent variable; the vertical intercept of our line would be _____; and the slope of our line would be _____.

Table: Hours Studied and Quiz Score

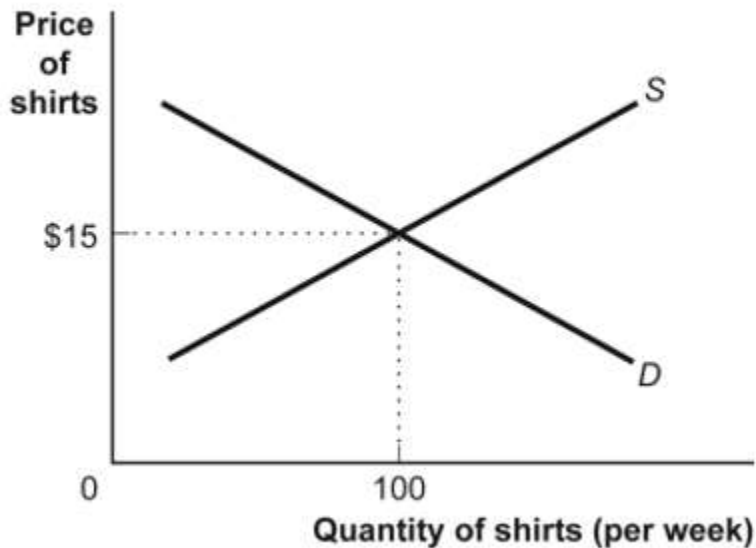
Hours Studied for Economics Quiz	Score on the Economics Quiz (maximum 10 points)
0	2
1	4
2	6
3	8
4	10

- a. quiz score; $y = 2$; -2
- b. quiz score; $x = 0$; -2
- c. hours studied; $y = 0$; $+2$
- d. hours studied; $y = 2$; $+2$

ANSWER: d

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Figure: Demand and Supply of Shirts



20. (Figure: Demand and Supply of Shirts) Use Figure: Demand and Supply of Shirts. In the graph, if the line labeled *D* shows how many shirts per week will be demanded at various prices, then it is clear that, as the price of shirts falls:

- a. fewer shirts will be demanded.
- b. more shirts will be demanded.
- c. the same quantity of shirts will be demanded.
- d. it is unclear what will happen to the quantity of shirts demanded.

ANSWER: b

21. (Figure: Demand and Supply of Shirts) Use Figure Demand and Supply of Shirts. If the line labeled *S* shows how many shirts per week will be offered for sale at various prices, then it is clear that, for supply, quantity and price are:

- a. the same.
- b. positively related.
- c. negatively related.
- d. not related.

ANSWER: b

22. (Table: Wages and Hours Willing to Work) Use Table: Wages and Hours Willing to Work. If it was graphed, the relationship between wage per hour and hours willing to work would be:

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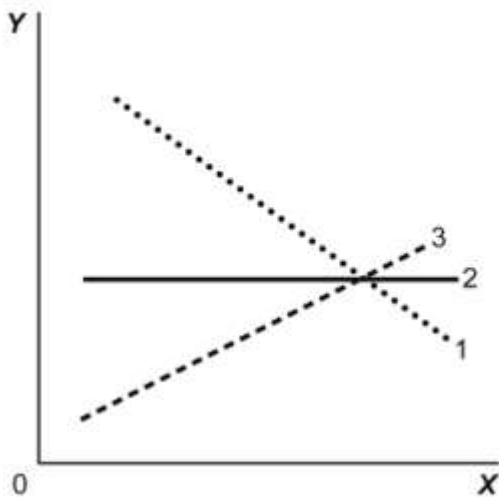
Table: Wages and Hours Willing to Work

Point	Wage	Hours Worked
A	6	0
B	8	5
C	12	20
D	20	40
E	30	45

- a. linear.
- b. coordinated.
- c. nonlinear.
- d. negatively sloped.

ANSWER: c

Figure: Illustrating Slope



23. (Figure: Illustrating Slope) Use Figure: Illustrating Slope. In the graph, line 1 depicts X and Y to be:
- a. positively related.
 - b. nonlinearly related.
 - c. unrelated.
 - d. negatively related.

ANSWER: d

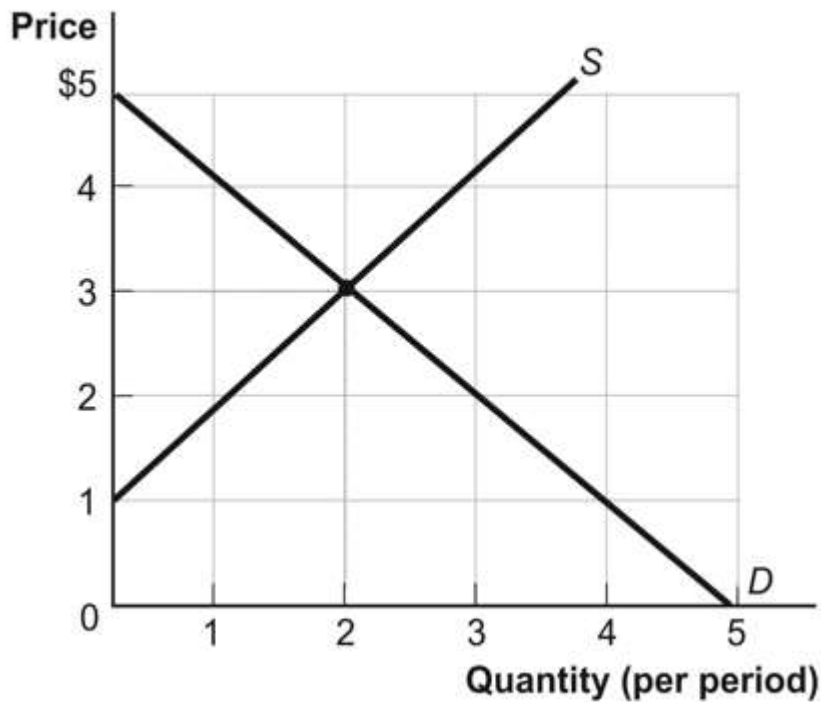
24. (Figure: Illustrating Slope) Use Figure: Illustrating Slope. In the graph, line 3 depicts X and Y to be:

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- a. positively related.
- b. unrelated.
- c. negatively related.
- d. both fixed in value.

ANSWER: a

Figure: Demand and Supply



25. (Figure: Demand and Supply) Use Figure: Demand and Supply. The curve labeled *D* indicates that a price of \$2 is associated with a quantity of:

- a. 0.
- b. 1.
- c. 2.
- d. 3.

ANSWER: d

26. (Figure: Demand and Supply) Use Figure: Demand and Supply. The curve labeled *S* indicates that a price of \$2 is associated with a quantity of:

- a. 0.
- b. 1.
- c. 2.
- d. 3.

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ANSWER: b

27. (Figure: Demand and Supply) Use Figure: Demand and Supply. The slope of the curve labeled *D* is:

- a. -1.
- b. 0.
- c. 1.
- d. 3.

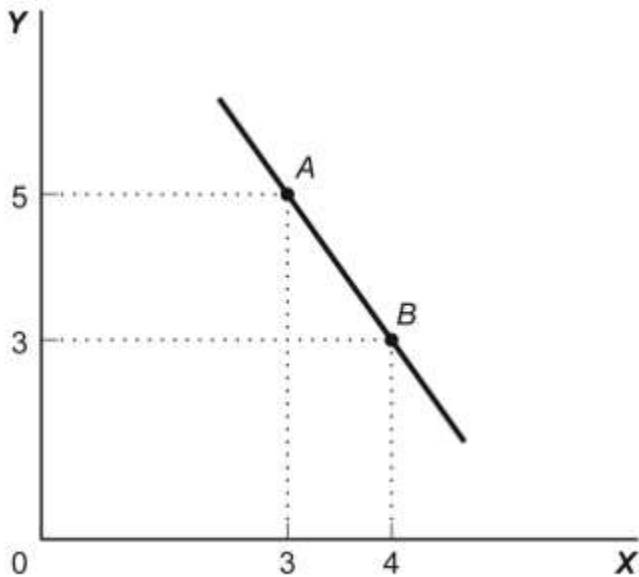
ANSWER: a

28. (Figure: Demand and Supply) Use Figure: Demand and Supply. The slope of the curve labeled *S* is:

- a. -1.
- b. 0.
- c. 1.
- d. 3.

ANSWER: c

Figure: Slope



29. (Figure: Slope) Use Figure: Slope. This graph depicts _____ relationship between the *X* and *Y* variables.

- a. a positive
- b. a negative
- c. an independent
- d. no

ANSWER: b

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30. (Figure: Slope) Use Figure: Slope. In the graph, the slope of the line between points *A* and *B* is:

- a. +8.
- b. -8.
- c. -2.
- d. +2.

ANSWER: c

31. (Figure: Slope) Use Figure: Slope. The slope of the line in the graph can be calculated by:

- a. dividing the horizontal change by the vertical change.
- b. dividing the vertical change by the horizontal change.
- c. subtracting the sum of the *Y* values from the sum of the *X* values.
- d. adding the sum of the *X* values to the sum of the *Y* values.

ANSWER: b

Table: Wages and Hours Worked

Point	Wage	Hours Worked
A	6	0
B	8	5
C	12	20
D	20	40
E	30	45

32. (Table: Wages and Hours Worked) Use Table: Wages and Hours Worked. Graphing the relation with wages on the vertical axis and hours worked on the horizontal axis, the slope between point *D* and point *E* is:

- a. 0.5.
- b. 5.
- c. 45.
- d. 2.

ANSWER: d

33. (Table: Wages and Hours Worked) Use Table: Wages and Hours Worked. Graphing the relation with wages on the vertical axis and hours worked on the horizontal axis, the slope between point *A* and point *B* is:

- a. 2.5.
- b. 5.
- c. 2.
- d. 2/5.

ANSWER: d

34. Two points on a nonlinear curve have coordinates given by (5, 15) and (17, 13). The average slope of the curve between these points is:

- a. -1/6.

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- b. -6.
- c. 1/4.
- d. 2.5.

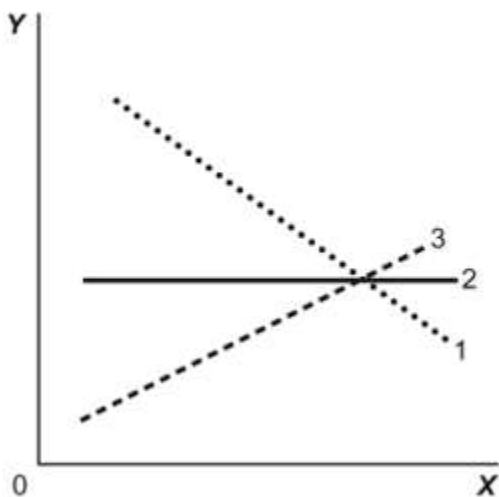
ANSWER: a

35. If two points on a graph are (0, 8) and (12, 15):
- a. X is 0 when Y is 12.
 - b. X and Y have a positive relation.
 - c. the horizontal intercept is given by the point (0, 8).
 - d. the slope of a line connecting the two points is negative.

ANSWER: b

36. (Figure: Illustrating Slope) Use Figure: Illustrating Slope. In the graph, line 2 has a slope of:

Figure: Illustrating Slope



- a. +1.
- b. 0.
- c. -1.
- d. infinity.

ANSWER: b

37. The slope of a straight line is the ratio of the:
- a. vertical change to the horizontal change.
 - b. horizontal change to the vertical change.
 - c. run over the rise.
 - d. vertical change to the horizontal change, and it must be positive.

ANSWER: a

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38. The ratio of the change in the variable on the vertical axis to the change in the variable on the horizontal axis, measured between two points on the curve, is the:

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

ANSWER: b

Table: Price, Quantity Demanded, and Quantity Supplied

Price	1	2	3	4	5
Quantity demanded	16	8	4	2	1
Quantity supplied	3	5	7	9	11

39. (Table: Price, Quantity Demanded, and Quantity Supplied) Use Table: Price, Quantity Demanded, and Quantity Supplied. A linear relationship exists between:

- a. price and quantity demanded.
- b. price and quantity supplied.
- c. price and quantity demanded minus quantity supplied.
- d. quantity demanded and quantity supplied.

ANSWER: b

40. (Table: Price, Quantity Demanded, and Quantity Supplied) Use Table: Price, Quantity Demanded, and Quantity Supplied. The data in the figure suggest a nonlinear relation between:

- a. price and quantity demanded.
- b. price and quantity supplied.
- c. price and quantity demanded, as well as price and quantity supplied.
- d. The table does not show a nonlinear relation.

ANSWER: a

41. (Table: Price, Quantity Demanded, and Quantity Supplied) Use Table: Price, Quantity Demanded, and Quantity Supplied. The slope of the line representing the relation between price on the vertical axis and quantity supplied on the horizontal axis is:

- a. equal to 1/2.
- b. equal to 1.
- c. equal to 2.
- d. different at different points on the line.

ANSWER: a

42. (Table: Price, Quantity Demanded, and Quantity Supplied) Use Table: Price, Quantity Demanded, and Quantity Supplied. The slope of the line representing the relationship between price on the vertical axis and

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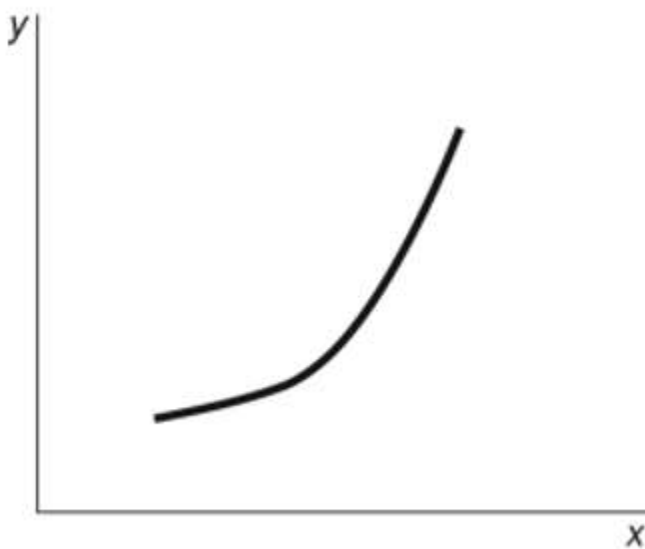
quantity demanded on the horizontal axis is:

- a. equal to 1/2.
- b. equal to 1.
- c. equal to 2.
- d. different at different points on the line.

ANSWER: d

43. (Figure: $Y = f(X)$) Use Figure: $Y = f(X)$. The slope of the relation between x and y is:

Figure: $Y = f(X)$

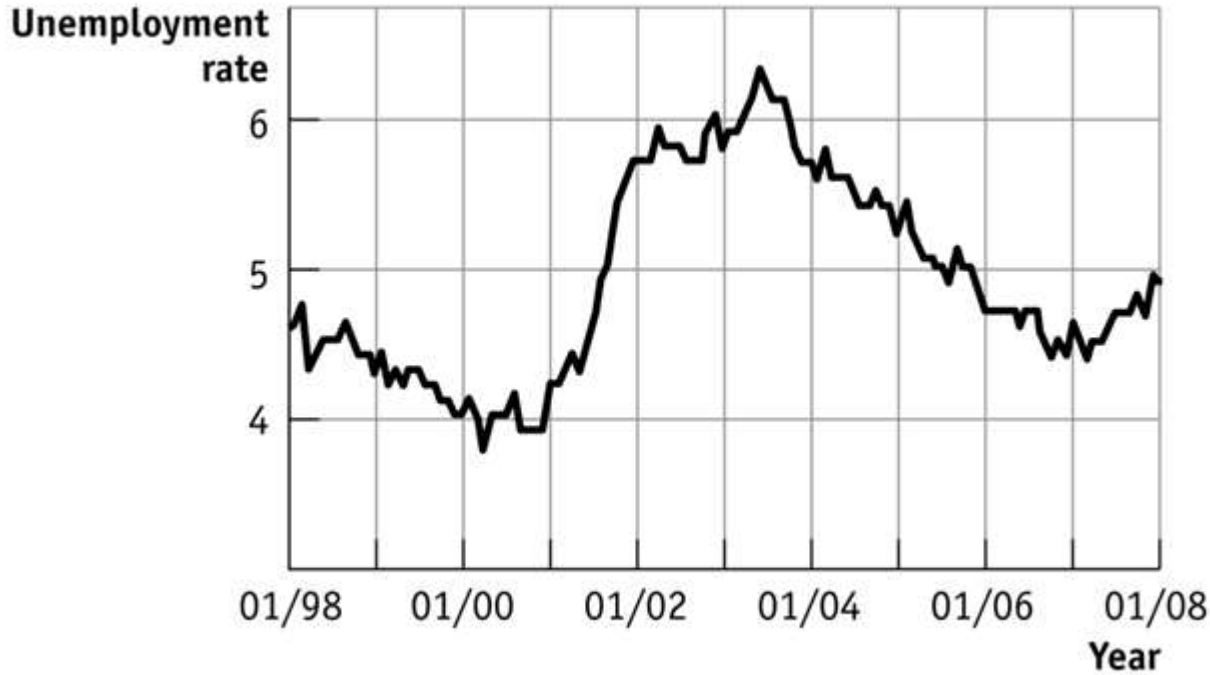


- a. positive and constant.
- b. negative and getting steeper.
- c. positive and getting steeper.
- d. positive and getting flatter.

ANSWER: c

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Figure: Seasonally Adjusted Unemployment Rate



44. (Figure: Seasonally Adjusted Unemployment Rate) Use Figure: Seasonally Adjusted Unemployment Rate. The distance between each labeled point on the horizontal axis is one year, and the distance between each labeled point on the vertical axis is one percentage point of unemployment. What is the approximate slope of the graph between 1/2004 and 1/2006 (using percentage point and years as the units on the vertical and horizontal axes, respectively)?

- a. 1/2
- b. 1
- c. -1/2
- d. -2

ANSWER: c

45. (Figure: Seasonally Adjusted Unemployment Rate) Use Figure: Seasonally Adjusted Unemployment Rate. The distance between each labeled point on the horizontal axis is one year, and the distance between each labeled point on the vertical axis is one percentage point of unemployment. What is the approximate slope of the graph between 1/2001 and 1/2003 (using percentage point and years as the units on the vertical and horizontal axes, respectively)?

- a. 2
- b. 1
- c. -1
- d. -2

ANSWER: b

46. (Figure: Seasonally Adjusted Unemployment Rate) Use Figure: Seasonally Adjusted Unemployment Rate.

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The distance between each labeled point on the horizontal axis is one year, and the distance between each labeled point on the vertical axis is one percentage point of unemployment. Unemployment was _____ between 1/2001 and 1/2002 and _____ between 1/1999 and 1/2000.

- a. increasing; decreasing
- b. increasing; increasing
- c. decreasing; increasing
- d. decreasing; decreasing

ANSWER: a

47. (Figure: Seasonally Adjusted Unemployment Rate) Use Figure: Seasonally Adjusted Unemployment Rate. The distance between each labeled point on the horizontal axis is one year, and the distance between each labeled point on the vertical axis is one percentage point of unemployment. Unemployment was _____ between 1/2001 and 1/2003 and _____ between 1/2007 and 1/2008.

- a. increasing; decreasing
- b. increasing; increasing
- c. decreasing; increasing
- d. decreasing; decreasing

ANSWER: b

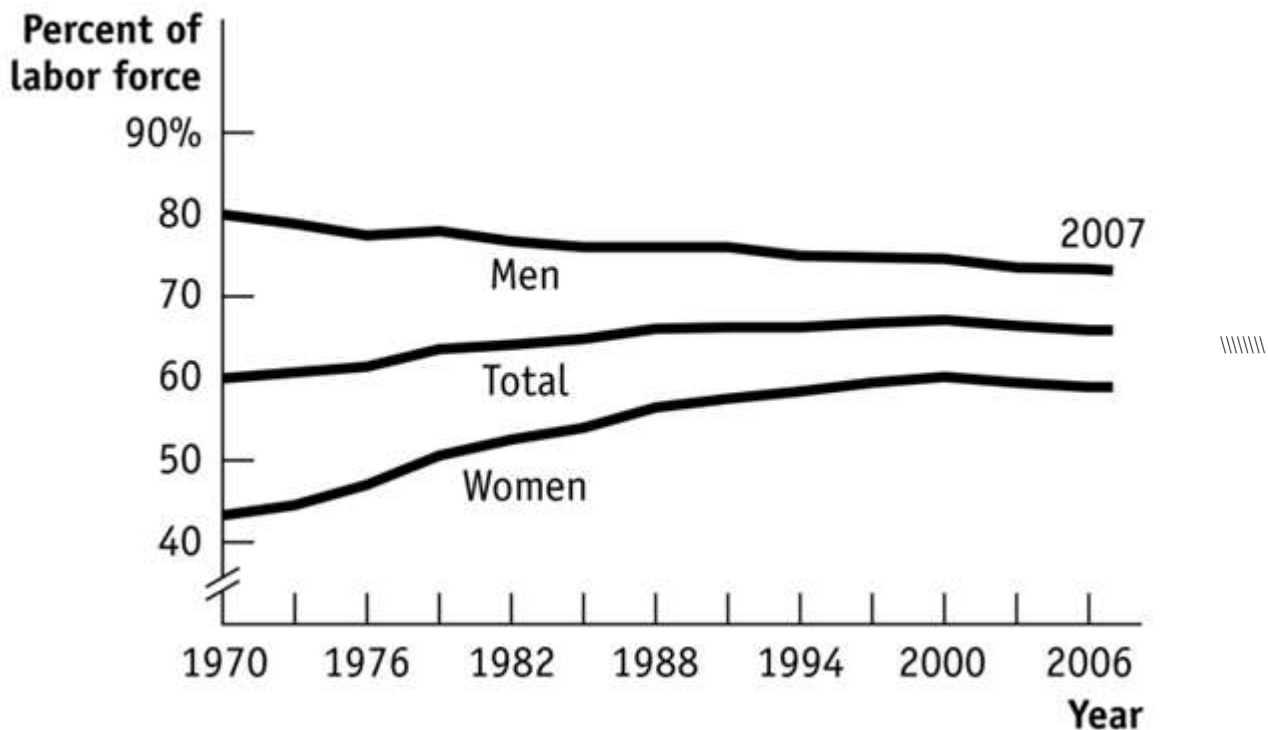
48. (Figure: Seasonally Adjusted Unemployment Rate) Use Figure: Seasonally Adjusted Unemployment Rate. The distance between each labeled point on the horizontal axis is one year, and the distance between each labeled point on the vertical axis is one percentage point of unemployment. Using this graph, the unemployment rate was at its lowest point (in the time window) shown in _____ and at its highest point (in the time window shown) in _____.

- a. 2003; 2000
- b. 2007; 2001
- c. 2003; 1999
- d. 2000; 2003

ANSWER: d

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Figure: Labor Force Participation Rate



49. (Figure: Labor Force Participation Rate) Use Figure: Labor Force Participation Rate. Using the figure, the labor force participation rate for women was _____ during 1970–1985 and _____ during 1998–2006.

- a. increasing; slightly decreasing
- b. increasing; increasing
- c. decreasing; increasing
- d. decreasing; constant

ANSWER: a

50. (Figure: Labor Force Participation Rate) Use Figure: Labor Force Participation Rate. During 1970–1985, the labor force participation rate was _____ for women and _____ for men.

- a. increasing; decreasing
- b. increasing; increasing
- c. decreasing; increasing
- d. decreasing; decreasing

ANSWER: a

51. Your boss asks you to graph company profits for the past 10 years. The BEST way to show this information is with a(n):

- a. scatter diagram.
- b. pie chart.
- c. time-series graph.

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d. independent graph.

ANSWER: c

52. The owner of the Dismal Philosopher, one of five bookstores on College Road, asks you to make a graph showing each College Road bookstore's share of all five stores' book purchases. The BEST way to show this information is with a(n):

- a. scatter diagram.
- b. pie chart.
- c. time-series graph.
- d. independent graph.

ANSWER: b

53. Professor Macro wants to use a numerical graph to show the percentage of government spending accounted for by its various components. Which graph is MOST suitable for this purpose?

- a. a bar graph
- b. a pie chart
- c. a time-series graph
- d. a scatter diagram

ANSWER: b

54. A positive relationship between swimsuits purchased and ice cream purchased could be the result of:

- a. reverse causality.
- b. a magnified scale on the swimsuit axis.
- c. a truncation of the ice cream axis.
- d. an omitted variable, such as the external temperature.

ANSWER: d

55. Taylor sees a bar graph showing the average weight of adult males over the past 200 years and concludes that men get more obese over time. Taylor's conclusion may be wrong since she did not consider:

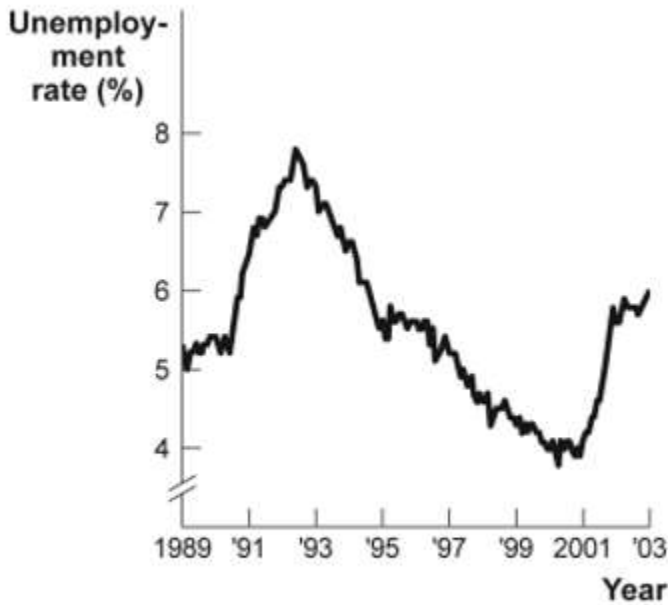
- a. the features of construction.
- b. omitted variables.
- c. reverse causality.
- d. tangent lines.

ANSWER: b

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Figure: Unemployment Rate over Time



Source: Bureau of Labor Statistics.

56. (Figure: Unemployment Rate over Time) Look at the figure Unemployment Rate over Time. In the time-series graph, as we move from the beginning of 2001 to the beginning of 2003, we see that the unemployment rate has _____ from approximately _____ to approximately _____.

- a. decreased; 5%; 4%
- b. increased; 5.3%; 7.3%
- c. decreased; 7.7%; 5.5%
- d. increased; 4%; 6%

ANSWER: d

57. (Figure: Unemployment Rate over Time) Use Figure: Unemployment Rate over Time. In the time-series graph, as we move from 1993 to 1995, we see that the unemployment rate has _____ from approximately _____% to approximately _____%.

- a. decreased; 5; 4
- b. increased; 5.3; 7.3
- c. decreased; 7; 5.5
- d. increased; 4; 6.3

ANSWER: c

58. (Figure: Unemployment Rate over Time) Use Figure: Unemployment Rate over Time. In the time-series graph, as we move from 1991 to 1993, we see that the unemployment rate has _____ from approximately _____% to approximately _____%.

- a. decreased; 5; 4

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- b. increased; 5.5; 7
- c. decreased; 7.8; 5
- d. increased; 4; 6.3

ANSWER: b

59. (Figure: Unemployment Rate over Time) Use Figure: Unemployment Rate over Time. In the time-series graph, as we move from 1997 to 2001, we see that the unemployment rate has _____ from approximately _____% to approximately _____%.

- a. decreased; 5; 4
- b. increased; 5.3; 7.3
- c. decreased; 7.8; 5.5
- d. increased; 4; 6.3

ANSWER: a

60. A _____ graph shows how the value of one or more variables has changed over some period.

- a. linear
- b. time-series
- c. nonlinear
- d. periodic table

ANSWER: b

61. The scaling of the axes of a time-series graph:

- a. is not a critical element in presenting the intended information.
- b. may change the visual interpretation of the data.
- c. generally places the time period on the vertical axis.
- d. generally puts values of a variable, such as the unemployment rate, on the vertical axis.

ANSWER: b

62. In a time-series graph, large changes can be made to appear insignificant by:

- a. changing the scale of the axes.
- b. labeling more intervals.
- c. defining the dependent variable.
- d. defining the independent variable.

ANSWER: a

63. A scatter diagram shows:

- a. how far apart dependent variables are.
- b. individual points of data showing both variable values.
- c. the slope of a line.
- d. the intercept of a curve.

ANSWER: b

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64. The fact that two variables always move together over time:
- a. does not prove that one of the variables is dependent on the other.
 - b. proves that one of the variables is dependent on the other.
 - c. proves that changes in one variable cause changes in the other.
 - d. is often illustrated or depicted using either a pie chart or a bar chart.

ANSWER: a

65. A pie chart is used to depict information about:
- a. the relative shares of categories of data.
 - b. the changes of a particular variable over time.
 - c. positive, not negative, relationships among variables.
 - d. the changes of a particular variable over time and positive relationships.

ANSWER: a

66. A bar graph:
- a. is useful when showing what has happened over time.
 - b. may be shown by vertical bars to illustrate the comparative sizes of different observations.
 - c. is useful when the true direction of causality between two variables is reversed.
 - d. shows the percentages of a total amount that can be attributed to various components.

ANSWER: d

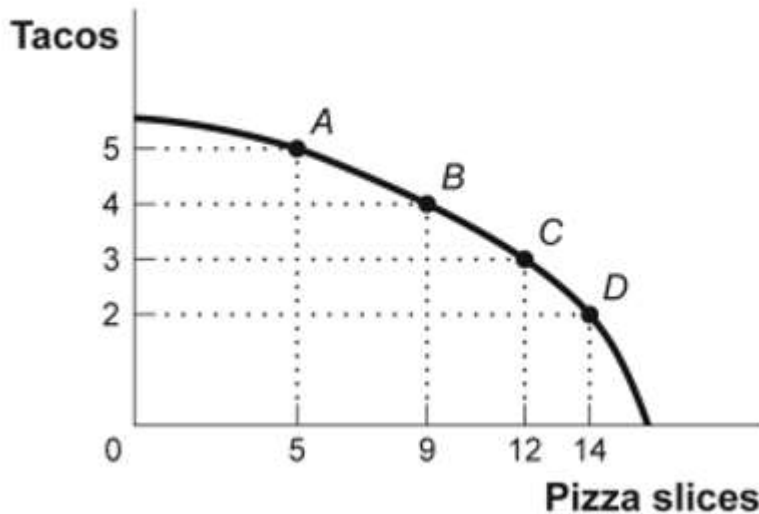
67. In looking at a chart of the positive relationship between police officers and crime, the mayor remarks that more police officers cause more crime. The mayor may be wrong because she did not consider:
- a. the features of construction.
 - b. omitted variables.
 - c. reverse causality.
 - d. tangent lines.

ANSWER: c

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Figure: Consumption of Pizza and Tacos



68. (Figure: Consumption of Pizza and Tacos) Use Figure: Consumption of Pizza and Tacos. The figure shows the number of tacos and pizza slices Matt can eat in a day. The relation is nonlinear, and there is a negative relation between the number of tacos and pizza slices that Matt can eat in a day.

- a. True
- b. False

ANSWER: a

69. (Figure: Consumption of Pizza and Tacos) Use Figure: Consumption of Pizza and Tacos. The figure shows the number of tacos and pizza slices Matt can eat in a day. The best estimate of the slope between point A and point B is -4 .

- a. True
- b. False

ANSWER: b

70. A linear curve has the same slope between every pair of points.

- a. True
- b. False

ANSWER: a

71. The owner of the Dismal Philosopher, one of the five bookstores on College Road, asks you to make a graph showing each College Road bookstore's share of all five stores' book purchases. A good way to show this information is with a pie chart.

- a. True
- b. False

ANSWER: a

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72. A town hires more police officers and then has an increase in arrests. One can conclude that the larger police force caused more crime.

- a. True
- b. False

ANSWER: b

Essay

73. An economist wishes to build a model to explain the relationship between the number of diamonds purchased every year and the average income of consumers in that year. Which variable should be the dependent variable and which should be the independent variable? All else equal, do you expect this relationship to be positive or negative? Explain.

ANSWER: The number of diamonds purchased should be the dependent variable and the average income should be the independent variable. It is much more reasonable to believe that income causes diamond purchases than the other way around. One would expect a positive relationship. As average income rises, all else equal, diamonds become more affordable to more people, and so more diamonds will be purchased.