Graphing Data

Topic: Graphing Data
Skill: Recognition
1) The horizontal axis in a graph
   A) measures time on a scatter diagram.
   B) measures the quality of a variable.
   C) is named the y-axis.
   D) is named the x-axis.
Answer: D

Topic: Graphing Data
Skill: Recognition
2) The vertical axis in a graph
   A) is named the y-axis.
   B) is named the x-axis.
   C) measures time in a cross-section/time-series graph.
   D) has no origin.
Answer: A

Topic: Graphing Data
Skill: Recognition
3) The value of the y-coordinate of a point in a graph is the length of a line from the point to the
   A) origin.
   B) scalar.
   C) x-axis.
   D) y-axis.
Answer: C

Topic: Graphing Data
Skill: Conceptual
4) The value of the x-coordinate of a point in a graph is the length of a line from the point to the
   A) origin.
   B) scalar.
   C) x-axis.
   D) y-axis.
Answer: D

Topic: Graphing Data
Skill: Analytical
5) Using the above figure, the origin is at which point?
   A) Point a.
   B) Point b.
   C) Point c.
   D) None of the points in the figure is the origin.
Answer: B

Topic: Graphing Data
Skill: Analytical
6) Using the above figure, which of the following is true?
   A) Axis 1 is typically called the y-axis.
   B) Axis 1 is also known as the origin.
   C) Axis 2 is typically called the x-axis.
   D) Point b is known as the origin.
Answer: D
**Topic: Time-Series Graphs**

**Skill: Recognition**

7) To see how variables evolve over time we use
   A) a scatter graph.
   B) an evolution plot.
   C) a cross-section plot.
   D) a time-series graph.

   **Answer: D**

**Topic: Time-Series Graphs**

**Skill: Conceptual**

8) You think that the volume of textiles produced in the United States has generally decreased. This belief means that in a time-series graph illustrating the total amount produced, you expect to find
   A) a positive trend.
   B) no relationship between time and the amount produced.
   C) an inverse relationship between time and the amount produced.
   D) a linear relationship.

   **Answer: C**

**Topic: Time-Series Graphs**

**Skill: Conceptual**

9) Demonstrating how an economic variable differs across countries for a specific year is best illustrated by
   A) a time-series graph.
   B) a cross-section graph.
   C) a scatter diagram.
   D) None of the above because any type of graph might mislead.

   **Answer: B**

**Topic: Time-Series Graphs**

**Skill: Analytical**

10) In the above figure, the amount of cloth fabric sold over time exhibits
    A) a downward trend.
    B) no trend.
    C) an upward trend.
    D) None of the above because the figure cannot show the trend of the amount of cloth fabric sold.

   **Answer: C**

**Topic: Time-Series Graphs**

**Skill: Recognition**

11) On a time-series graph, time is typically shown
    A) as an area.
    B) along the x-axis.
    C) along the y-axis.
    D) as an implicit variable held constant.

   **Answer: B**

**Topic: Time-Series Graphs**

**Skill: Conceptual**

12) The horizontal axis on a time-series graph
    A) measures the variable being graphed.
    B) measures units of time such as years.
    C) runs parallel to the y-axis.
    D) measures how the variable being graphed changes.

   **Answer: B**
13) In the above figure, the diagram shows
A) a downward trend in $x$.
B) an upward trend in $x$.
C) a scatter diagram.
D) a two-variable scatter diagram.
Answer: A

14) A time-series graph displaying real GDP from 1950 to 2001 has a positive trend. It is likely that real GDP
A) fell every year from 1950 to 2001.
B) rose every year from 1950 to 2001.
C) was lower in 1950 than in 2001.
D) was higher in 1950 than in 2001.
Answer: C

15) Inflation climbed steadily from 1952 to 1972. A time-series graph with inflation on the vertical axis and time (in years) on the horizontal axis would show
A) the rate of inflation as a horizontal line.
B) that inflation was following a decreasing trend line.
C) that inflation had a positive trend.
D) that inflation had a negative trend.
Answer: C

16) A time-series graph displays the price of copper. The slope of the line is negative for periods when
A) the price of copper is falling.
B) the price of copper is rising.
C) the quantity of copper is falling.
D) the price of copper is low and not changing.
Answer: A

17) A graph shows the wages of factory workers. The slope of the line is positive for periods when
A) the wage is falling.
B) the wage is rising.
C) the wage is high but not rising any higher.
D) the wage is low.
Answer: B

18) A trend is
A) a measure of closeness on a scatter diagram.
B) increases but not decreases of a variable.
C) decreases but not increases of a variable.
D) a general tendency for a variable to rise or fall.
Answer: D

19) Trend refers to
A) the scale used on the $x$- and $y$-coordinates.
B) increases but not decreases of a variable.
C) decreases but not increases of a variable.
D) a general tendency for a variable to rise or fall.
Answer: D

20) Which of the following is TRUE regarding a trend?
I) A cross section graph shows trends.
II) A time-series graph shows trends.
III) A scatter plot shows trends over time.
A) I.
B) I and II.
C) II.
D) II and III.
Answer: C
21) A graph shows the unemployment rate rising during a recession and falling during expansions. This graph implies
A) there is a positive trend during recessions.
B) there is a negative trend during expansions.
C) there is a tendency for the unemployment rate to go up and down.
D) all of the above are true.
Answer: D

22) A graph shows the level of imports falling during a recession and rising during an expansion. This result implies
A) there is a negative trend during recessions.
B) there is a positive trend during recessions.
C) there is a negative trend during expansions.
D) the level of imports is fairly steady over time.
Answer: A

23) A cross-section graph shows the value of a variable
A) for different groups at a point in time.
B) for a given group across time.
C) as an absolute rate of change over time.
D) as a percentage rate of change over time.
Answer: A

24) A graph shows the average wage of various demographic groups in 2002. The kind of graph used to show this data would be
A) a scatter plot.
B) a time-series graph.
C) a cross-section graph.
D) a Venn-diagram.
Answer: C

25) A graph shows the average SAT scores for males and females in 2002. The kind of graph used to show this data would be
A) a scatter plot.
B) a time-series graph.
C) a cross-section graph.
D) None of the above.
Answer: C

26) An economist is studying how wages for high-school dropouts vary among six western European countries in 2002. These data could be graphed in
A) a one-variable graph.
B) two triple-axes graphs.
C) a cross-section graph.
D) a time-series graph with each different country measured along the horizontal axis.
Answer: C

27) A school board is studying how test scores vary by socio-economic levels. The data represent information observed in 2002. The most effective way of depicting the data is a
A) one-variable graph.
B) trending-line graph.
C) cross-section graph.
D) time-series graph.
Answer: C

28) A scatter diagram shows the
A) level of one variable over time.
B) change in one variable over time.
C) relationship between two variables.
D) evolution of a variable.
Answer: C
29) The figure above is a
A) scatter diagram.
B) time-series graph.
C) cross-section graph.
D) not a scatter diagram, nor a time-series graph, nor a cross-section graph.

Answer: A

30) The above figure is
A) a time-series graph showing that when unemployment rises, so too does inflation.
B) a cross-section graph showing that when unemployment falls, so too does inflation.
C) a scatter diagram showing that there is no clear relationship between unemployment and inflation.
D) an economic model showing that when unemployment falls, inflation rises.

Answer: C
31) The above figure plots income and consumption in a nation. In 2000
A) consumption was equal to $25,000 and income was equal to $28,000.
B) consumption was equal to $28,000 and income was equal to $25,000.
C) consumption was equal to $25,000 and income was equal to $25,000.
D) consumption was equal to $27,000 and income was equal to $31,000.
Answer: A

32) The above figure graphs the price of a bushel of wheat and housing starts. The graph shows the variables are
A) strongly positively related.
B) strongly negatively related.
C) not related.
D) related via an indirect relationship.
Answer: C
Topic: Breaks in the Axes  
Skill: Recognition
33) In the above figure, the axis breaks are used
   A) to create a misleading graph.
   B) to indicate that there are jumps from the origin, 0, to the first values recorded along the axes.
   C) to indicate that there is not enough data to be included in the graph.
   D) to show that there is no data available for the omitted ranges.
Answer: B

Topic: Breaks in the Axes  
Skill: Analytical
34) In the above figure, the axis break in the $x$-axis
   A) reflects the fact that for the years covered in the figure, the unemployment rate was never less than 4 percent.
   B) shows that there is no relationship between inflation and unemployment.
   C) misleadingly shows that inflation has changed very little even though the unemployment rate has increased a great deal.
   D) implies that for the years covered in the figure, the inflation rate was always greater than 1 percent.
Answer: A

Topic: Correlation and Causation  
Skill: Conceptual
35) On a graph, high correlation between the variable measured along the $x$-axis and the variable measured along the $y$-axis
   A) means that changes in the variable measured along the $x$-axis must cause changes in the variable measured along the $y$-axis.
   B) means that changes in the variable measured along the $y$-axis must cause changes in the variable measured along the $x$-axis.
   C) means that changes in either variable must cause changes in the other variable.
   D) does NOT mean that a change in the variable measured along the $x$-axis must cause a change in the variable measured along the $y$-axis.
Answer: D
Graphs Used in Economic Models

**Topic: Variables That Move in the Same Direction**
**Skill: Recognition**

36) If two variables are positively related
   A) they move in opposite directions over time.
   B) they are independent of each other.
   C) they move in the same direction over time.
   D) their graph will have a negative slope.
   **Answer: C**

37) If two variables both increase at the same time or decrease at the same time, they are
   A) unrelated to each other.
   B) positively related.
   C) negatively related.
   D) conversely related.
   **Answer: B**

38) If the slope of a line that graphs the relationship between variable \( x \) and variable \( y \) is positive, then we know that
   A) when the value of variable \( x \) increases, then the value of variable \( y \) decreases.
   B) when the value of variable \( x \) decreases, then the value of variable \( y \) decreases.
   C) the two variables are unrelated.
   D) the two variables have an inverse relationship.
   **Answer: B**

39) For the Jones household it has been estimated that for every ten degrees increase in the outdoor temperature the consumption of ice tea increases by 5 glasses. What type of relationship exists between temperature change and the consumption of ice tea?
   A) Negative relationship.
   B) Positive relationship.
   C) No relationship.
   D) Maximum relationship.
   **Answer: B**

40) In the above figure, which curve shows a positive relationship between \( x \) and \( y \)?
   A) Only curve \( A \).
   B) Only curve \( B \).
   C) Only curve \( C \).
   D) All the curves show a positive relationship.
   **Answer: D**

41) In the above figure, which curve shows a negative relationship between \( x \) and \( y \)?
   A) Only curve \( A \).
   B) Only curve \( B \).
   C) Only curve \( C \).
   D) None of the curves show a negative relationship.
   **Answer: D**
42) A scatter diagram with the price of vacations to Mexico on the vertical axis and the price of vacations to California on the horizontal axis shows a positive relationship. If the price of vacations to Mexico were placed on the horizontal axis, and the price of vacations to California on the vertical axis, the relationship would be
A) negative relationship, also called a direct relationship.
B) negative relationship, also called an inverse relationship.
C) positive relationship, also called a direct relationship.
D) positive relationship, also called an inverse relationship.
Answer: C

43) If you hire 1 worker, he can produce 10 pretzels a day. If you hire a 2nd worker, she can produce 8 more pretzels. If you hire a 3rd worker, she can produce 6 more pretzels a day. A graph displaying this relationship between the number of employees on the horizontal axis and total pretzel output per day on the vertical axis shows
A) a positive linear relationship.
B) an upward-sloping curve that becomes less steep as employment increases.
C) a negative linear relationship.
D) a negatively-sloped curve that becomes less steep as employment as increases.
Answer: B

### Table

<table>
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<th>x</th>
<th>y</th>
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<tbody>
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<td>8</td>
<td>24</td>
</tr>
<tr>
<td>10</td>
<td>30</td>
</tr>
</tbody>
</table>

44) In the above table, when x increases from 4 units to 6 units, y changes by ____ units.
A) 2
B) –2
C) 6
D) –6
Answer: C

45) The above table indicates that variables x and y are
A) positively related.
B) inversely related.
C) negatively related.
D) second cousins.
Answer: A

### Table

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<td>14</td>
</tr>
<tr>
<td>5</td>
<td>17</td>
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</table>

46) Given the information in the above table, the relationship between x and y is
A) positive, and the curve becomes flatter as x increases.
B) positive, and the curve becomes steeper as x increases.
C) positive and linear.
D) negative and linear.
Answer: C
47) In the above figure, the relationship between $x$ and $y$ is
A) positive, and the curve becomes flatter as $x$ increases.
B) positive, and the curve becomes steeper as $x$ increases.
C) positive and linear.
D) negative and linear.
Answer: C

<table>
<thead>
<tr>
<th>Total household income (dollars)</th>
<th>Total consumption (dollars)</th>
</tr>
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<tbody>
<tr>
<td>30,000</td>
<td>27,000</td>
</tr>
<tr>
<td>40,000</td>
<td>35,000</td>
</tr>
<tr>
<td>50,000</td>
<td>38,000</td>
</tr>
</tbody>
</table>

48) The data in the table above shows the relationship between the Joneses’ total consumption and total household income. Based on these data, total consumption varies
A) directly with their total household income.
B) independently of their total household income.
C) inversely with their total household income.
D) negatively with their income.
Answer: A

49) The above figure shows the relationship between the Joneses’ total consumption and total household income. The figure illustrates that the Joneses’ total consumption varies
A) directly with their total household income.
B) independently of their total household income.
C) inversely with their total household income.
D) negatively with their income.
Answer: A
GRAPHS IN ECONOMICS

50) The relationship depicted in the above figure is
   A) a negative linear relationship.
   B) a positive linear relationship.
   C) a positive becoming less steep relationship.
   D) a positive becoming steeper relationship.
   Answer: C

51) Whenever one variable increases, another variable decreases. The two variables are
   A) definitely related through a third variable.
   B) negatively related.
   C) positively related.
   D) unrelated to each other.
   Answer: B

52) If variable x always increases when variable y decreases, x and y are said to be
   A) positively related.
   B) negatively related.
   C) unrelated.
   D) trend related.
   Answer: B

53) If there is an inverse relationship between variable x and variable y, then that means that an increase in the value of variable x will be accompanied by
   A) an increase in the value of variable y.
   B) a decrease in the value of variable y.
   C) no change in the value of variable y.
   D) variable y reaching its maximum value.
   Answer: B

54) If there is an inverse relationship between two variables, the
   A) graph of this relationship will be a horizontal line.
   B) graph of this relationship will be downward-sloping.
   C) slope of the line (or the slope of a tangent line to the curve) will be positive.
   D) graph of this relationship will be upward-sloping.
   Answer: B

55) Suppose that we find that student grades and time spent at parties move in opposite directions. A graph of the relationship between these two variables would curve
   A) upward and be linear.
   B) upward and may be linear or nonlinear.
   C) downward and be linear.
   D) downward and may be linear or nonlinear.
   Answer: D

56) The faster an automobile is driven (speed), the lower the miles per gallon (mpg) for that automobile. Given this information, we say that an automobile’s speed and mpg have a(n)
   A) direct relationship.
   B) inverse relationship.
   C) linear relationship.
   D) maximum relationship.
   Answer: B
**Topic: Variables That Move in Opposite Directions**  
**Skill: Conceptual**

57) As you devote more hours to studying, your snowboarding skills decrease. A graph of this relationship would show

A) a negative relationship.  
B) a direct relationship.  
C) an inverse relationship.  
D) Both answers A and C are correct.

**Answer: D**

**Topic: Variables That Move in the Opposite Direction**  
**Skill: Conceptual**

58) If the quantity of wood purchased decreases when the price of wood rises, a graph representing these variables would have

A) time on the vertical axis.  
B) the slope on the vertical axis.  
C) a negative slope.  
D) a positive slope.

**Answer: C**

**Topic: Variables That Move in the Opposite Direction**  
**Skill: Conceptual**

59) A scatter diagram with the price of peanut butter on the vertical axis and the price of jelly on the horizontal axis shows a negative relationship. If the price of jelly was placed on the vertical axis and the price of peanut butter was placed on the horizontal axis, the relationship would be a

A) negative relationship, also called a direct relationship.  
B) negative relationship, also called an inverse relationship.  
C) positive relationship, also called a direct relationship.  
D) positive relationship, also called an inverse relationship.

**Answer: B**

**Topic: Variables That Move in Opposite Directions**  
**Skill: Recognition**

60) In the above figure, a negative relationship is demonstrated in which of the graphs?

A) Figure A.  
B) Figure B.  
C) Figure C.  
D) Figure D.

**Answer: B**
**Topic: Variables That Move in Opposite Directions**

**Skill: Analytical**

61) The above figure depicts a
A) positive non-linear relationship between age and the number of hamburgers purchased per year.
B) negative non-linear relationship between age and the number of hamburgers purchased per year.
C) positive linear relationship between age and the number of hamburgers purchased per year.
D) negative linear relationship between age and the number of hamburgers purchased per year.

*Answer: D*

62) In the above figure, the relationship between costs and quantity is negative
A) between point $A$ and point $B$.
B) between point $B$ and point $C$.
C) along the entire curve.
D) at nowhere along the curve.

*Answer: A*

**Topic: Variables That Move in the Same Direction**

**Skill: Analytical**

63) In the above, a positive relationship between price and quantity is shown in
A) Figure A.
B) Figure B.
C) Both Figure A and Figure B.
D) Neither Figure A nor Figure B.

*Answer: B*
**Topic: Variables That Move in Opposite Directions**

**Skill: Analytical**

64) In the above figure, a negative relationship between price and quantity is shown in

A) Figure A.
B) Figure B.
C) Both Figure A and Figure B.
D) Neither Figure A nor Figure B.

**Answer: A**

**Topic: Variables That Have a Maximum or Minimum**

**Skill: Conceptual**

65) If as a firm expands its output, cost per unit of output (average cost) decreases and then increases, then average cost and output have

A) a relationship with a minimum.
B) a relationship with a maximum.
C) no relationship.
D) a linear positive relationship.

**Answer: A**

<table>
<thead>
<tr>
<th>Decade</th>
<th>Productivity growth (percent)</th>
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<td>1900s</td>
<td>1.80</td>
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<tr>
<td>1910s</td>
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**Topic: Variables That Have A Maximum or A Minimum**

**Skill: Analytical**

67) In the above table, two minimum points in the table are the decades of

A) 1910s and 1970s.
B) 1960s and 1970s.
C) 1950s and 1980s.
D) 1930s and 1970s.

**Answer: D**

68) In the above figure, the relationship between the tax rate and tax revenue is positive and becoming less steep between tax rates of

A) 0 percent and 30 percent.
B) 30 percent and 100 percent.
C) 0 percent and 100 percent.
D) None of the above answers are correct.

**Answer: A**

69) In the above figure, if the tax rate is increased from 20 percent to 30 percent, tax revenue

A) decreases.
B) is constant.
C) increases.
D) may increase or decrease.

**Answer: C**
Topic: Variables That Have a Maximum or Minimum
Skill: Analytical
70) In the above figure, tax revenue is at a maximum when the tax rate is
A) 0 percent.
B) 30 percent.
C) 50 percent.
D) 100 percent.
Answer: B

Topic: Maximum and Minimum Points
Skill: Conceptual
71) As a curve approaches a maximum point, the slope will
A) be positive, then negative after the maximum point.
B) be negative, then positive after the maximum point.
C) remain constant on either side of the maximum point.
D) increase before and after the maximum point.
Answer: A

To...
Topic: Variables That Are Unrelated
Skill: Analytical

77) Which of the following correctly describes the above figure?
   I) There is no relationship between the price of an avocado and a student’s grade in economics.
   II) The value of variable measured on the y-axis is constant as the variable measured on the x-axis increases.
   III) As a student’s grade in economics increases, the price of an avocado increases.
   A) I.
   B) I and II.
   C) II and III.
   D) I, II, and III.

Answer: B

Topic: Variables That Are Unrelated
Skill: Analytical

78) A diagram shows the quantity of tomatoes on the horizontal axis and the quantity of coffee on the vertical axis. The quantity of tomatoes remains constant as the quantity of coffee increases. The graph of these data is
   A) a horizontal line.
   B) a vertical line.
   C) a positively sloped line.
   D) a negatively sloped line.

Answer: A

Topic: Variables That Are Unrelated
Skill: Analytical

79) A graph measures y on the vertical axis and x on the horizontal. The curve on the graph is a horizontal line. From this fact we know that
   A) the value of x never changes.
   B) the value of y does not depend on the value of x.
   C) the ratio of x to y is constant.
   D) the slope of the line is not defined because y never changes.

Answer: B

Topic: Variables That Are Unrelated
Skill: Analytical

80) A graph measures y on the vertical axis and x on the horizontal. The curve on the graph is a vertical line. From this fact we know that
   A) the value of x does not change when the value of y changes.
   B) the value of y is constant.
   C) the ratio of x to y is constant.
   D) the ratio of y to x is constant.

Answer: A

Topic: Variables That Are Unrelated
Skill: Conceptual

81) The graph of two variables, x and y, is a horizontal line. This result indicates that x and y are
   A) positively related.
   B) negatively related.
   C) not related.
   D) falsely related.

Answer: C

Topic: Variables That Are Unrelated
Skill: Analytical

82) Consider a diagram in which the variable measured on the y-axis remains constant while the variable measured on the x-axis increases. The graph of this relationship is
   A) a perpendicular line.
   B) a line with slope equal to zero.
   C) a line that has positive slope.
   D) a line that has a negative slope.

Answer: B
**Topic: Variables That Are Unrelated**

**Skill: Conceptual**

83) An independent relationship between two variables is shown in a graph by

A) an upward-sloping line.  
B) a horizontal or a vertical line.  
C) a downward-sloping line.  
D) a steeply sloped line.

**Answer: B**

**Topic: Variables That Are Unrelated**

**Skill: Analytical**

84) If two variables are unrelated, a scatter diagram of those variables will

A) be a vertical line.  
B) be a horizontal line.  
C) be either a vertical or horizontal line.  
D) have a constant positive slope.

**Answer: C**

**Topic: Variables That Are Unrelated**

85) Which of the following correctly describes the above figure?

A) There is no relationship between $x$ and $y$.  
B) There is a positive relationship between $x$ and $y$.  
C) There is a negative relationship between $x$ and $y$.  
D) None of the above answers are correct.

**Answer: A**

**The Slope of a Relationship**

**Topic: The Slope of a Relationship**

**Skill: Recognition**

87) The slope of a line equals

A) the change in the variable measured along the $x$-axis divided by the change in the variable measured along the $y$-axis.  
B) the change in the variable measured along the $y$-axis divided by the change in the variable measured along the $x$-axis.  
C) the change in the variable measured along the $x$-axis minus the change in the variable measured along the $y$-axis.  
D) the change in the variable measured along the $x$-axis multiplied by the change in the variable measured along the $y$-axis.

**Answer: B**
### Topic: The Slope of a Relationship
#### Skill: Analytic
88) The slope of a positive relationship is
A) positive.
B) undefined.
C) positive to the right of the maximum point and negative to the left.
D) constant as long as the relationship is nonlinear.

**Answer: A**

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
</tr>
</tbody>
</table>

### Topic: The Slope of a Relationship
#### Skill: Analytical
89) In the above table, the relationship between $x$ and $y$ is ____ and, with $y$ measured on the vertical axis, the slope between $y = 5$ and $y = 8$ is equal to ____.
A) negative; 8
B) negative; 6
C) positive; 5
D) positive; 3

**Answer: D**

### Topic: The Slope of a Straight Line
#### Skill: Recognition
90) The slope of a straight line is
A) variable.
B) increasing.
C) decreasing.
D) constant.

**Answer: D**

### Topic: The Slope of a Straight Line
#### Skill: Analytical
91) With $y$ measured on the vertical axis and $x$ measured on the horizontal axis, the slope of a straight line is defined as
A) $y/x$.
B) $x/y$.
C) (change in $y$)/(change in $x$).
D) (change in $x$)/(change in $y$).

**Answer: C**

### Topic: The Slope of a Straight Line
#### Skill: Analytical
92) The slope of a straight line is $3/4$. When $x$ equals 20, $y$ equals 14. When $x$ equals 32, $y$ equals ___.
A) 17.
B) 23.
C) 9.
D) 26.

**Answer: B**

### Topic: The Slope of a Straight Line
#### Skill: Analytical
93) The slope of a straight line is 3. When $x$ equals 10, $y$ equals 33. When $x$ equals 11, $y$ equals ___.
A) 27.
B) 30.
C) 36.
D) 39.

**Answer: C**

### Topic: The Slope of a Straight Line
#### Skill: Analytical
94) Along a straight line, when $x$ equals 90, then $y$ equals 30. When $x$ equals 120, then $y$ equals 40. The slope of the straight line is
A) $1/3$.
B) $-1/3$.
C) 3.
D) $-3$.

**Answer: A**

### Topic: The Slope of a Straight Line
#### Skill: Analytical
95) Along a straight line, the value of $y$ is always equal to the value of $x$. The slope of the line is
A) $-1$.
B) 0.
C) 1.
D) infinite.

**Answer: C**

### Topic: The Slope of a Straight Line
#### Skill: Analytical
96) If the change in $y = -4$, and the change in $x = 2$, there is
A) an independent relationship between $y$ and $x$.
B) a positive relationship between $y$ and $x$.
C) a negative relationship between $y$ and $x$.
D) no relationship between $y$ and $x$.

**Answer: C**
97) If the change in $y = 10$, and the change in $x = 3$, there is

A) a positive relationship between $y$ and $x$.
B) a negative relationship between $y$ and $x$.
C) an independent relationship between $y$ and $x$.
D) no relationship between $y$ and $x$.

Answer: A

98) The change in $y = -20$, and the change in $x = -4$. Thus there is

A) no relationship between $y$ and $x$.
B) a negative relationship between $y$ and $x$.
C) a positive relationship between $y$ and $x$.
D) an independent relationship between $y$ and $x$.

Answer: C

99) Using the data in the table above, with $y$ measured on the vertical axis, the slope of the line relating $y$ to $x$ is

A) $1/3$.
B) 1.
C) 3.
D) 6.

Answer: C

100) On a graph, an upward-sloping curve that is flatter as you move away from the origin indicates

A) a positive relationship with an increasing slope.
B) a positive relationship with a decreasing slope.
C) a negative relationship with an increasing slope.
D) a negative relationship with a decreasing slope.

Answer: B

101) If the price of apples is on the vertical axis and the quantity of apples demanded is on the horizontal axis, the slope between two points on the line describing the relationship between price and quantity is

A) the change in price multiplied by the change in quantity.
B) the change in price divided by the change in quantity.
C) the change in quantity divided by the change in price.
D) price divided by quantity.

Answer: B

102) The formula for the slope across an arc is used to approximate the slope for

A) linear relationships only.
B) a curved line.
C) a positive relationship only.
D) a negative relationship only.

Answer: B

103) The slope of a curved line can be approximated by

A) the average of the variable measured along the $y$-axis divided by the average of the variable measured along the $x$-axis.
B) the inverse of the straight-line method.
C) the average of the variable measured along the $x$-axis divided by the average of the variable measured along the $y$-axis.
D) the slope across an arc from one point on the curve to another point on the curve.

Answer: D
APPENDIX I

Topic: The Slope Across an Arc
Skill: Analytical
104) In the above figure, the slope across the arc between c and d is
   A) 1/2.
   B) 1.
   C) 4/3.
   D) 2.
Answer: A

Topic: The Slope Across an Arc
Skill: Analytical
105) In the above figure, the slope across the arc between b and c is
   A) 1/2.
   B) 2/3.
   C) 1.
   D) 2.
Answer: C

Topic: The Slope Across an Arc
Skill: Analytical
106) In the above figure, the slope across the arc between a and b is
   A) 2/5.
   B) 1.
   C) 3/2.
   D) 5/2.
Answer: D

Topic: The Slope at a Point
Skill: Analytical
107) In the above figure, the slope at point b is
   A) 1.
   B) 5/2.
   C) between 1 and 5/2.
   D) greater than 5/2.
Answer: C

Topic: The Slope of a Relationship
Skill: Analytical
108) In the above figure, the relationship between x and y is
   A) positive, with slope decreasing as x increases.
   B) negative, with slope decreasing as x increases.
   C) negative, with slope increasing as x increases.
   D) positive, with slope increasing as x increases.
Answer: A

Topic: The Slope of a Relationship
Skill: Analytical
109) The slope in the above figure is
   A) negative and increasing.
   B) negative and decreasing.
   C) positive and increasing.
   D) positive and decreasing.
Answer: D
**Graphing Relationships Among More Than Two Variables**

**Topic: Graph Relationships—More Than Two Variables, Ceteris Paribus**

**Skill: Recognition**

113) *Ceteris paribus* when graphing a relationship refers to
A) letting all the variables change at once.
B) changing the origin of the graph.
C) holding constant all but two variables.
D) rescaling the coordinates.

**Answer: C**

**Topic: Graph Relationships—More Than Two Variables, Ceteris Paribus**

**Skill: Conceptual**

114) In evaluating a relationship between *x* and *y*, *ceteris paribus* means other variables
A) are not relevant to *x* and *y*.
B) move in opposite directions to *x* and *y*.
C) are not changing while *x* and *y* change.
D) move with *x* and *y*.

**Answer: C**

115) On a graph showing the relationship between *x* and *y*, the *ceteris paribus* condition implies that
A) no other variables are related to *x* and *y*.
B) the value of *x* is held constant.
C) the value of *y* is held constant.
D) other variables not shown are held constant.

**Answer: D**
116) Assume that the quantity consumed of pizza is dependent on three factors: the price of a pizza, the income of pizza purchasers, and consumers’ taste for pizza. When graphing the relationship between the price of a pizza and the quantity of pizza consumed

A) the price of a pizza and the income of pizza consumers are the only variables that are allowed to change.
B) the price of pizza and quantity consumed of pizza are the only variables that are allowed to change.
C) consumers’ taste for pizza and the income of pizza purchasers are the only variables that are allowed to change.
D) None of the above answers are correct.

Answer: B

117) In the above figure,

A) consumption expenditures are a linear function of labor income.
B) the slope of the function depicted is 0.9.
C) consumption expenditures are positively related to labor income.
D) All of the above answers are correct.

Answer: D

118) If consumption expenditures are positively related to non-labor income, then if non-labor income were higher than that corresponding to the function in the above figure,

A) consumption expenditure would be higher at any level of labor income than depicted above.
B) consumption expenditure would be lower at any level of labor income than depicted above.
C) consumption expenditures would be the same at any level of labor income as that depicted above.
D) We cannot say how the function depicted above would be affected.

Answer: A

119) In the above figure, when income is zero, household expenditures equal

A) 0.
B) $1000.
C) $4000.
D) $8000.

Answer: D
**Topic: Variables That Move in the Same Direction**  
**Skill: Analytical**

120) In the above figure, the relationship between income and expenditures is
A) positive.  
B) negative.  
C) independent.  
D) random.  
Answer: A

**Topic: Variables That Move in the Same Direction**  
**Skill: Analytical**

121) The relationship in the above figure suggests that when the interest rate is 5 percent,
A) a decrease in income will be associated with a decrease in expenditures.  
B) a decrease in income will be associated with an increase in expenditures.  
C) an increase in income will be associated with a decrease in expenditures.  
D) there is no relationship between expenditures and income.  
Answer: A

**Topic: The Slope of a Straight Line**  
**Skill: Analytical**

122) The slope of the line in the above figure is
A) –4.  
B) 2.5.  
C) –1.0.  
D) 1.0.  
Answer: D

**Topic: Graphing Relationships Among More Than Two Variables**  
**Skill: Analytical**

123) In the above figure, while moving along the line showing the relationship between household income and expenditure,
A) household expenditures are held constant.  
B) household income is held constant.  
C) the interest rate is held constant.  
D) no variable is held constant.  
Answer: C

**Topic: Graphing Relationships Among More Than Two Variables**  
**Skill: Analytical**

124) In the above figure, if the interest rate is negatively related to household expenditures for any given level of household income, an increase in the interest rate will
A) shift the line vertically upward.  
B) shift the line vertically downward.  
C) make the line negatively sloped.  
D) cause no change in the line’s position.  
Answer: B

**Study Guide Questions**

**Topic: Study Guide Question, Time-Series Graphs**  
**Skill: Recognition**

125) Demonstrating how an economic variable changes from one year to the next is best illustrated by a
A) one-variable graph.  
B) time-series graph.  
C) linear graph.  
D) cross-section graph.  
Answer: B

**Topic: Study Guide Question, Time-Series Graphs**  
**Skill: Recognition**

126) You believe that the total amount of goods produced in the United States has generally increased. In a time-series graph illustrating the total amount produced, you expect to find
A) an upward trend.  
B) no relationship between time and the amount of goods produced.  
C) an inverse relationship between time and the amount of goods produced.  
D) a linear relationship.  
Answer: A
Topic: Study Guide Question, Scatter Diagrams
Skill: Conceptual
127) You notice that when the inflation rate increases, the interest rate tends to increase. This observation indicates that
A) there might be false causality between inflation and the interest rate.
B) higher inflation rates must cause a higher interest rate.
C) a scatter diagram of the inflation rate and the interest rate will show a positive relationship.
D) a cross-section graph of the inflation rate and the interest rate will show a positive relationship.
Answer: C

Topic: Study Guide Question, Scatter Diagrams
Skill: Conceptual*
128) You hypothesize that more natural gas is sold in the Northeast when winters are colder. Which of the following possibilities would best reveal if your belief is correct?
A) A time-series diagram showing the amount of natural gas sold in the Northeast during the last 30 years.
B) A time-series diagram showing the average temperature in the Northeast during the last 30 years.
C) A scatter-diagram plotting the average temperature in the Northeast against the amount of natural gas sold.
D) A trend diagram that plots the trend in natural gas sales over the last 30 years against the average temperature in the Northeast 30 years ago and this year.
Answer: C

Topic: Study Guide Question, Misleading Graphs
Skill: Conceptual*
129) Which type of graph can mislead?
A) A time-series graph.
B) A cross-section graph.
C) A scatter diagram.
D) Any type of graph might mislead.
Answer: D

Topic: Study Guide Question, Scatter Diagrams
Skill: Conceptual*
130) If variables $x$ and $y$ move up and down together, they are
A) positively related.
B) negative related.
C) unrelated.
D) trend related.
Answer: A

Topic: Study Guide Question, Variables That Move in the Same Direction
Skill: Recognition*
131) The term “direct relationship” means the same as
A) correlation.
B) trend.
C) positive relationship.
D) negative relationship.
Answer: C

Topic: Study Guide Question, Scatter Diagrams
Skill: Conceptual*
132) In the figure above, when income equals $20,000, what does consumption equal?
A) $0
B) $10,000
C) $20,000
D) Impossible to tell
Answer: D
133) The relationship between income and consumption illustrated in the figure above is
A) positive and linear.
B) positive and nonlinear.
C) negative and linear.
D) negative and nonlinear.
Answer: A

134) The figure above shows
A) a positive relationship.
B) a time-series relationship.
C) a negative relationship.
D) no relationship between the variables.
Answer: C

135) The relationship between two variables, x and y, is a vertical line. Thus x and y are
A) positively correlated.
B) negatively correlated.
C) not related.
D) falsely related.
Answer: C

136) The slope of a negative relationship is
A) negative.
B) undefined.
C) positive to the right of the maximum point and negative to the left.
D) constant as long as the relationship is nonlinear.
Answer: A

137) A linear relationship
A) always has a maximum.
B) always has a constant slope.
C) always slopes up to the right.
D) never has a constant slope.
Answer: B

138) The relationship between x and y in the above figure is
A) positive with an increasing slope.
B) positive with a decreasing slope.
C) negative with an increasing slope.
D) negative with a decreasing slope.
Answer: A
139) In the above figure, the slope across the arc between points $a$ and $b$ equals

A) 5.
B) 4.
C) 2.
D) 1.

Answer: C

140) In the above figure, between $x = 2$ and $x = 3$, what is the slope of the line?

A) 1
B) –1
C) 2
D) 3

Answer: A

141) In the above figure, how does the slope of the line between $x = 4$ and $x = 5$ compare with the slope between $x = 2$ and $x = 3$?

A) The slope is greater between $x = 4$ and $x = 5$.
B) The slope is greater between $x = 2$ and $x = 3$.
C) The slope is the same.
D) The slope is not comparable.

Answer: C

142) In the above figure, $ceteris paribus$, an increase in $x$ is associated with

A) an increase in $y$.
B) a decrease in $y$.
C) a decrease in $z$.
D) None of the above answers is correct.

Answer: A

143) In the above figure, $ceteris paribus$, an increase in $x$ is associated with

A) positively related to $y$ and negatively related to $z$.
B) positively related to both $y$ and $z$.
C) negatively related to $y$ and positively related to $z$.
D) negatively related to both $y$ and $z$.

Answer: C
Topic: Study Guide Question, Graphing More Than Two Variables
Skill: Analytical*

144) In the figure above, an increase in z leads to a
A) movement up along one of the lines showing the relationship between x and y.
B) movement down along one of the lines showing the relationship between x and y.
C) shift rightward in the line showing the relationship between x and y.
D) shift leftward in the line showing the relationship between x and y.

Answer: C