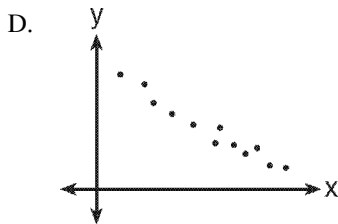
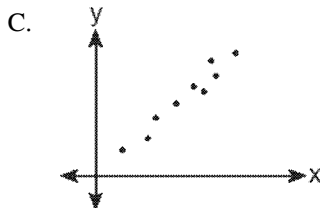
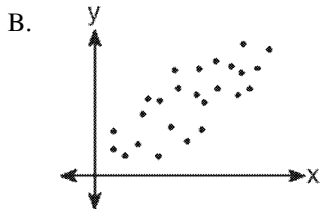
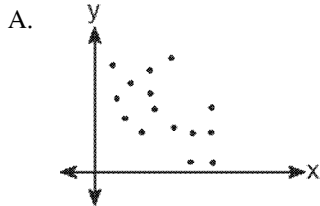


Learning Goal 11.2: Scatterplots & Regression

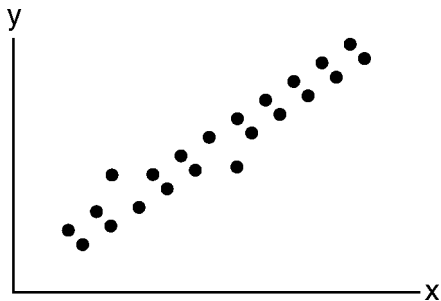
Name: _____

Date: _____

1. Which graph represents data used in a linear regression that produces a correlation coefficient closest to -1 ?

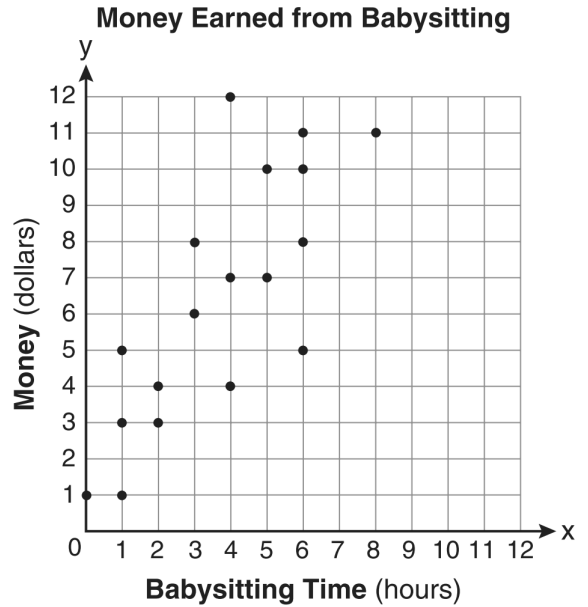


2. What could be the approximate value of the correlation coefficient for the accompanying scatter plot?



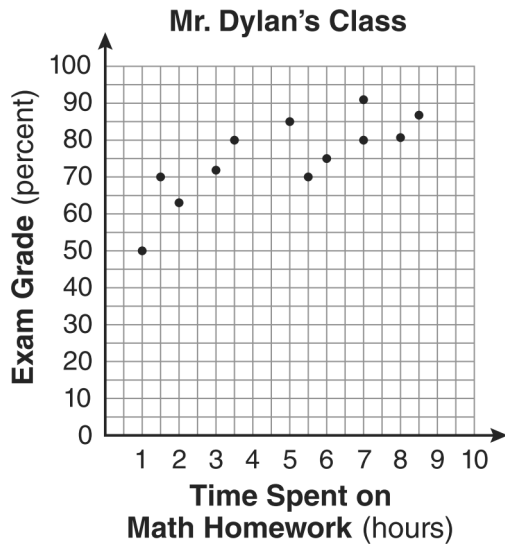
- A. -0.85 B. -0.16 C. 0.21 D. 0.90

3. Which equation most closely represents the line of best fit for the scatter plot below?



- A. $y = x$ B. $y = \frac{2}{3}x + 1$
 C. $y = \frac{3}{2}x + 4$ D. $y = \frac{3}{2}x + 1$
4. Which two variables would *most likely* show a positive association?
- A. the outside temperature and the number of homes with air-conditioning turned on
 B. scores on students' math tests and the number of pets the students have at home
 C. the hours of television watched and the hours spent completing homework
 D. the average speed traveled and the time it takes to reach the destination

5. The number of hours spent on math homework each week and the final exam grades for twelve students in Mr. Dylan's algebra class are plotted below.

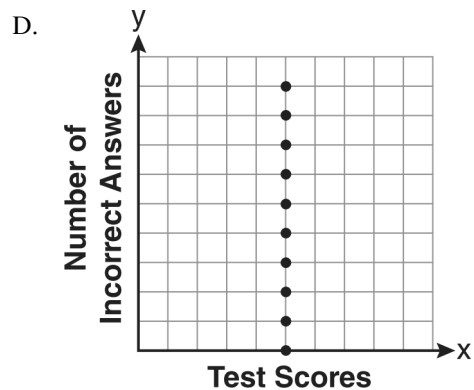
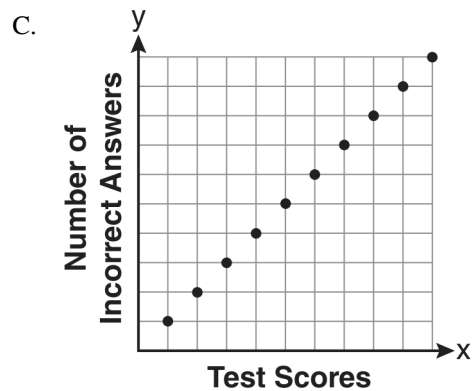
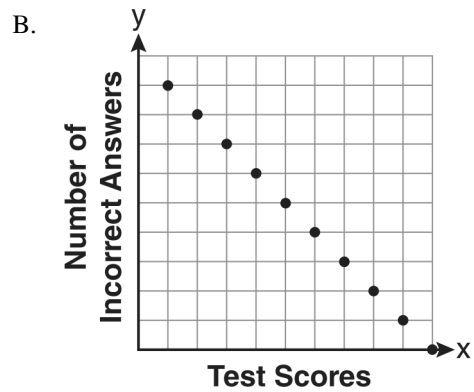
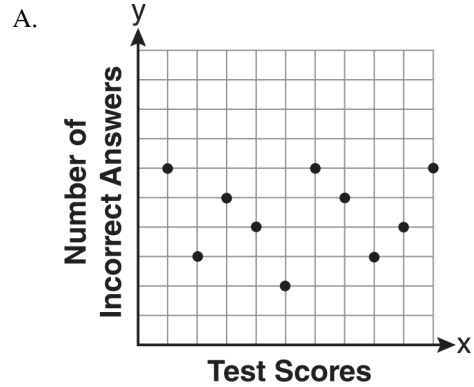


Based on a line of best fit, which exam grade is the best prediction for a student who spends about 4 hours on math homework each week?

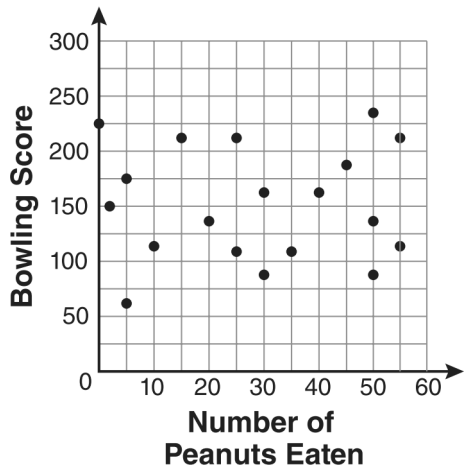
- A. 62 B. 72 C. 82 D. 92

6. Which data will *most likely* show a negative correlation when graphed on a scatterplot?
- A. the outside temperature and the number of people wearing gloves
 - B. the distance a student lives from school and the amount of time it takes to get to school
 - C. the number of visitors at an amusement park and the length of the lines for the rides
 - D. a student's height and grade point average

7. Which scatter plot shows the relationship between x and y if x represents a student score on a test and y represents the number of incorrect answers a student received on the same test?



8. The scatter plot below represents the relationship between the number of peanuts a student eats and the student's bowling score.



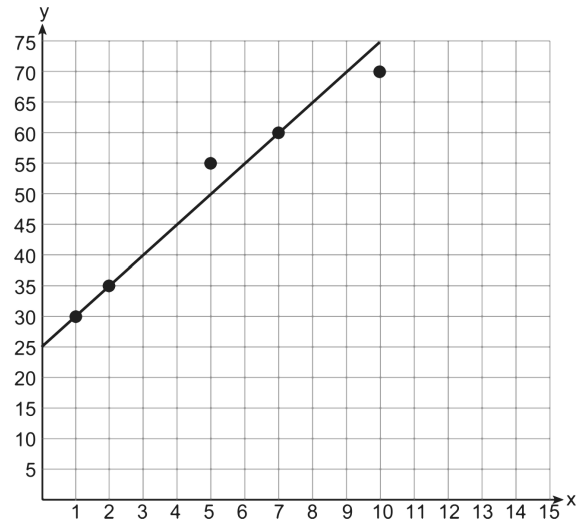
Which conclusion about the scatter plot is valid?

- A. There is almost no relationship between eating peanuts and bowling score.
- B. Students who eat more peanuts have higher bowling scores.
- C. Students who eat more peanuts have lower bowling scores.
- D. No bowlers eat peanuts.

9. Which situation describes a negative correlation?

- A. the amount of gas left in a car's tank and the amount of gas used from it
- B. the number of gallons of gas purchased and the amount paid for the gas
- C. the size of a car's gas tank and the number of gallons it holds
- D. the number of miles driven and the amount of gas used

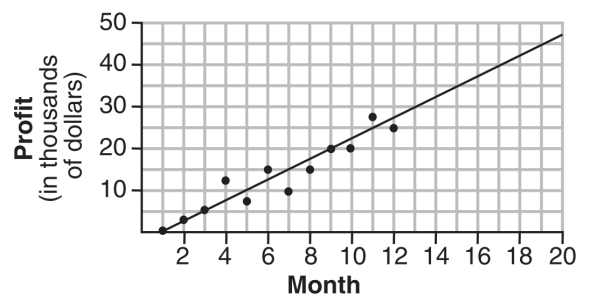
10. A scatter plot was constructed on the graph below and a line of best fit was drawn.



What is the equation of this line of best fit?

- A. $y = x + 5$
- B. $y = x + 25$
- C. $y = 5x + 5$
- D. $y = 5x + 25$

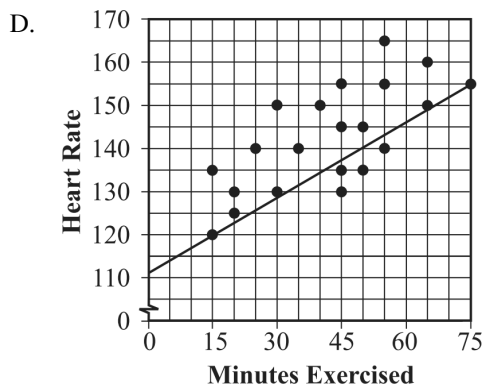
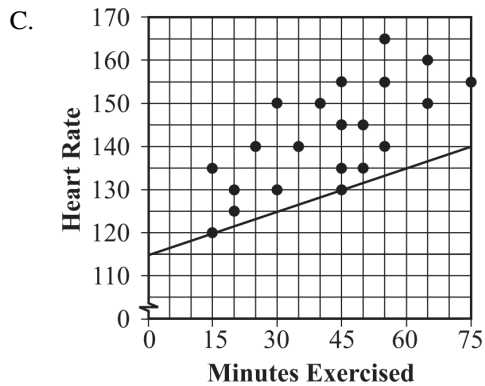
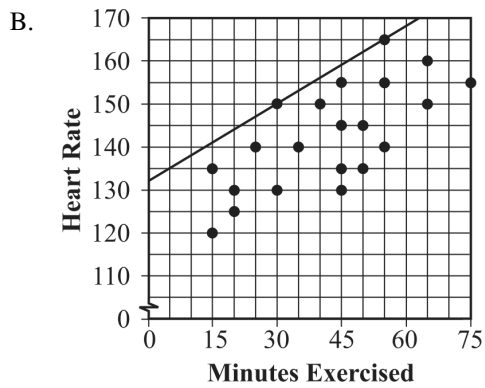
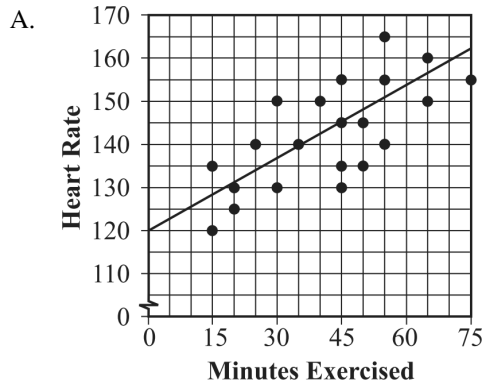
11. The scatter plot below shows the profit, by month, for a new company for the first year of operation. Kate drew a line of best fit, as shown in the diagram.



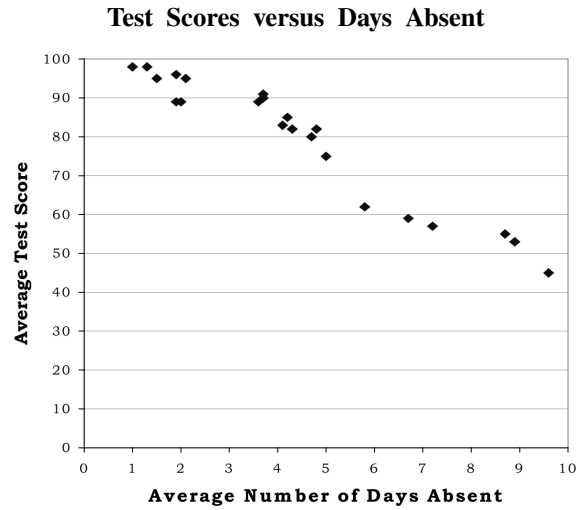
Using this line, what is the best estimate for profit in the 18th month?

- A. \$35,000
- B. \$37,750
- C. \$42,500
- D. \$45,000

12. Cody graphed the results of the minutes she exercised versus her heart rate. Which scatter plot shows the line of best fit?



13. What is the relationship between average test scores and days absent from school shown in the plot below?



- A. Test scores are equal to the number of days absent from school.
- B. There is a positive correlation between test scores and days absent.
- C. There is a negative correlation between test scores and days absent.
- D. There is no relationship between test scores and days absent.
14. The table below shows the number of words a student typed during five timed sessions.

STUDENT'S TYPING

Time (m) (in minutes)	2	3	4	6	9
Number of Words Typed (w)	122	182	240	368	538

Which equation *best* models a line of best fit for these data?

- A. $w = 3m + 60$ B. $w = 60m + 3$
- C. $w = 102m - 117$ D. $w = -117m + 102$

15. The table shows the number of households with a telephone answering machine in selected years after 1980.

Years after 1980 (x)	4	6	8	10	12	14	16	18
Number of Households with Answering Machines	8.7	10.8	13.0	16.0	21.0	30.0	37.5	43.8

Using the data points, which quadratic equation *best* models this set of data?

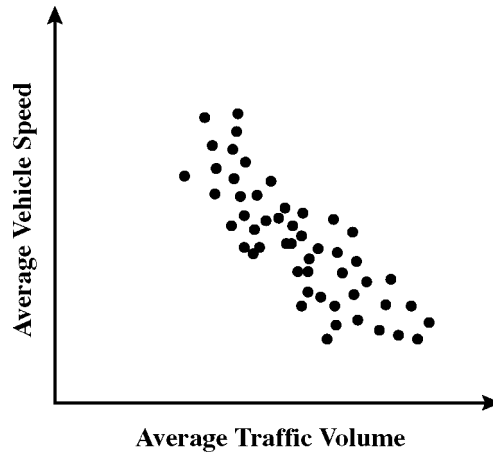
- A. $y = 8.4x^2 - 0.6x + 7.3$
- B. $y = 0.15x^2 - 0.74x + 9.25$
- C. $y = 0.2x^2 - 1.5x + 12$
- D. $y = -0.008x^2 + 0.79x - 1.39$
16. The scatter plot shows the relationship between the amount of time Casey was at the mall and the amount of money she spent there.



Which statement best describes the relationship between the amount of money Casey spent and the amount of time she was at the mall?

- A. The amount of money spent was not affected by the amount of time at the mall.
- B. The amount of money spent decreased as the amount of time at the mall increased.
- C. The amount of money spent increased as the amount of time at the mall increased.
- D. The amount of money spent remained the same without regard to the amount of time at the mall.

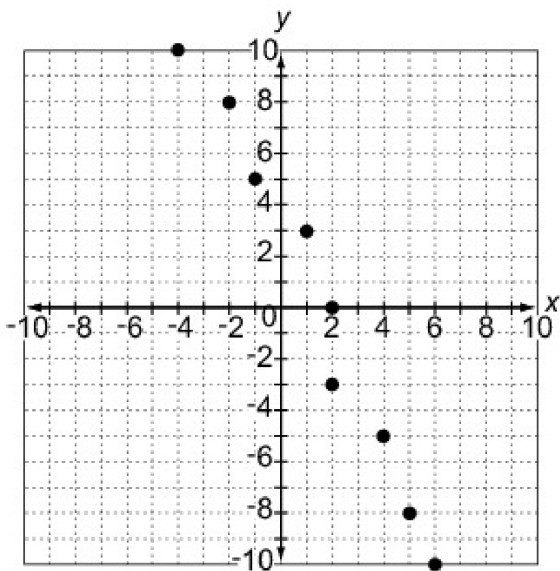
17. The scatter plot below shows the average traffic volume and average vehicle speed on a certain freeway for 50 days in 1999.



Which statement best describes the relationship between average traffic volume and average vehicle speed shown on the scatter plot?

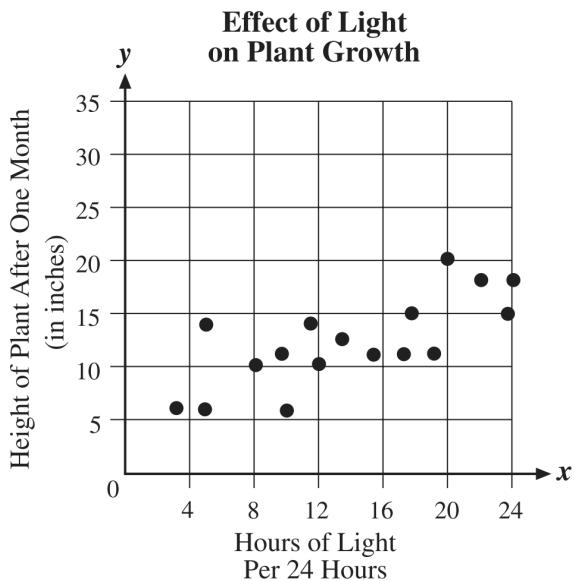
- A. As traffic volume increases, vehicle speed increases.
- B. As traffic volume increases, vehicle speed decreases.
- C. As traffic volume increases, vehicle speed increases at first, then decreases.
- D. As traffic volume increases, vehicle speed decreases at first, then increases.

18. Which equation defines a line that best fits all the points on the graph?



- A. $y = \frac{x}{2} + 3$ B. $y = -2x - 3$
 C. $y = 2x - 3$ D. $y = -2x + 3$

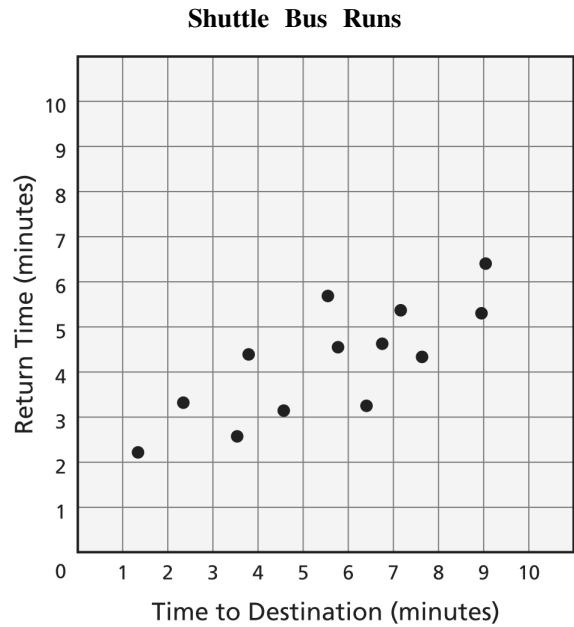
19. Jenny studied the effect of light on plant growth. She graphed a scatterplot to represent her data.



Which of the following *best* represents the equation for the line of best fit for the data shown?

- A. $y = -4x + 5$ B. $y = 0.4x + 5$
 C. $y = -0.4x + 5$ D. $y = 4x + 5$

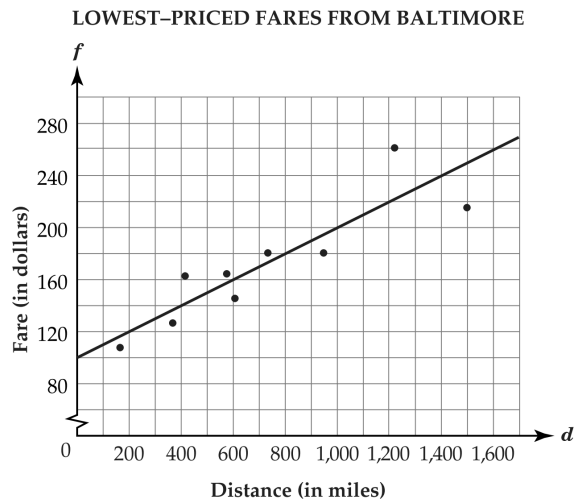
20. An airport terminal runs shuttle buses to different parts of the airport. The scatter plot shows the times for each part of the airport and a number of round trips.



Which equation is closest to the line of best fit for this data?

- A. $y = \frac{3}{5}x + 1$ B. $y = \frac{3}{2}x + 1$
 C. $y = \frac{3}{4}x + 2$ D. $y = \frac{5}{4}x + 2$

21. The scatter plot below shows the lowest-priced fares for flights from Baltimore to various destinations. A line of best fit has been graphed.



The equation for this line of best fit is shown below, where d is the distance in miles and f is the fare in dollars.

$$f = 0.1d + 100$$

Which of these is a correct interpretation of the slope of this line?

- A. The fare increases \$100 for every additional 0.1 mile.
- B. The fare increases \$10 for every additional mile.
- C. The fare increases \$0.10 for every additional 100 miles.
- D. The fare increases \$0.10 for every additional mile.

22. The table below shows the age and the value of a computer.

VALUE OF A COMPUTER

Age (in Years) (x)	Value (y)
0	\$800
1	\$620
2	\$410
3	\$200

Which of these is the meaning of the slope of an equation for a line of best fit for these data?

- A. the value of the computer when it was bought
- B. the amount that the value of the computer decreases per year
- C. the age of the computer depends on the value of the computer

23. The table below shows the price of rings for various weights of gemstones.

Weight (x)	0.17	0.25	0.28	0.35	0.32
Price (y)	\$355	\$642	\$823	\$1,086	\$919

Which statement *best* interprets the meaning of the y -intercept of the linear function that best fits these data?

- A. the price of the ring per unit of weight of the gemstone
- B. the weight of the gemstone per dollar
- C. the cost of the ring with no gemstone
- D. the weight of the gemstone in the ring that costs \$0

24. Mr. Hanson recorded the typing speeds (in words per minute) of 25 students and their weeks of experience. The line of best fit for the data is $y = 4.4x + 18.9$, where x is the number of weeks of experience of a student and y is the student's typing speed. What is the meaning of the y -intercept for this set of data?
- A. the average typing speed of the students
 - B. the highest typing speed recorded
 - C. the improvement in typing speed per week for the average student
 - D. the typing speed of a student with no experience

25. The equation $y = 461.19x + 3,492$ represents the value of a work of art from 1964 to 2005. What does the number 461.19 represent?
- A. value of the work of art in 1964
 - B. value of the work of art in 2005
 - C. yearly decrease in value
 - D. yearly increase in value

26. The table below shows the costs for visits of different lengths by cleaning companies in a town. The length of a visit is represented by x , and the cost of a visit is represented by y . Each cleaning company charges a flat fee for visiting the house or apartment and an hourly rate.

Length of Visit (in hours)	Cost of Visit
2	\$72
2	\$76
3	\$91
3.5	\$103
4	\$105
4.5	\$113
5.5	\$135

The equation of the line of best fit for the data is $y = 16.8x + 40.5$. What does the y -intercept represent?

- A. length of a visit
- B. cost of a visit
- C. flat fee
- D. hourly rate

Learning Goal 11.2: Scatterplots & Regression 5/16/2018

- | | | | |
|---------|---|---------|---|
| 1. | | 21. | |
| Answer: | D | Answer: | D |
| 2. | | 22. | |
| Answer: | D | Answer: | B |
| 3. | | 23. | |
| Answer: | D | Answer: | C |
| 4. | | 24. | |
| Answer: | A | Answer: | D |
| 5. | | 25. | |
| Answer: | B | Answer: | D |
| 6. | | 26. | |
| Answer: | A | Answer: | C |
| 7. | | | |
| Answer: | B | | |
| 8. | | | |
| Answer: | A | | |
| 9. | | | |
| Answer: | A | | |
| 10. | | | |
| Answer: | D | | |
| 11. | | | |
| Answer: | C | | |
| 12. | | | |
| Answer: | A | | |
| 13. | | | |
| Answer: | C | | |
| 14. | | | |
| Answer: | B | | |
| 15. | | | |
| Answer: | | | |
| 16. | | | |
| Answer: | A | | |
| 17. | | | |
| Answer: | B | | |
| 18. | | | |
| Answer: | D | | |
| 19. | | | |
| Answer: | B | | |
| 20. | | | |
| Answer: | A | | |