

# SAT Prep

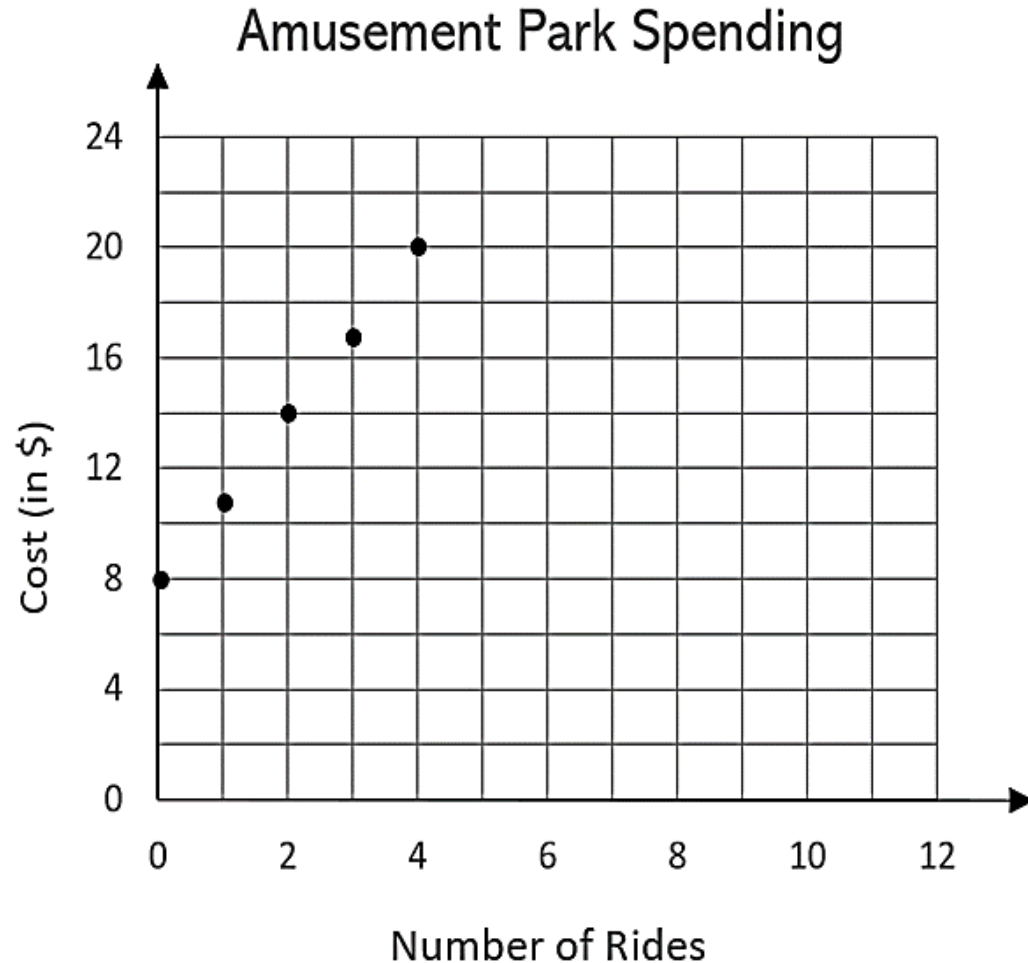
## Data Analysis



# CONCEPTS

# QUESTIONS

1.



Wesley went to an amusement park with his family. He paid for his own admission ticket and all of the rides he rode. The scatter plot shows possible amounts that he could have paid. If a line of best fit (not shown) is used to model the data, the equation of the line would be  $y = 3x + 8$ . In this scenario, what does 3 represent?

- A. The cost of one ride
- B. The number of rides Wesley rode.
- C. The cost of the admission ticket
- D. The number of hours Wesley stayed at the park



# QUESTIONS

2. The data in which of the following scatter plots would be best modelled by a quadratic function in which the  $x^2$  term has a negative coefficient?

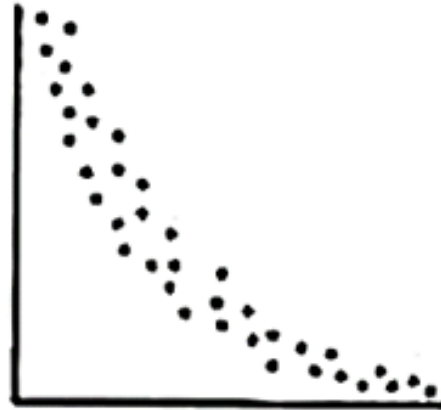
A.



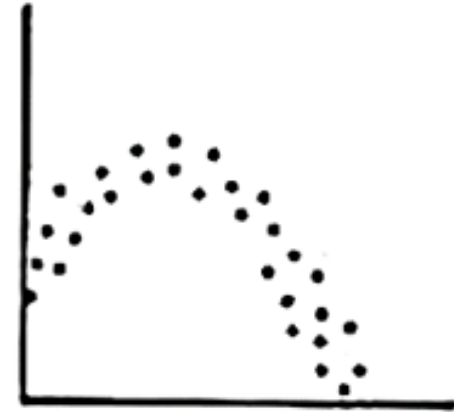
B.



C.



D.



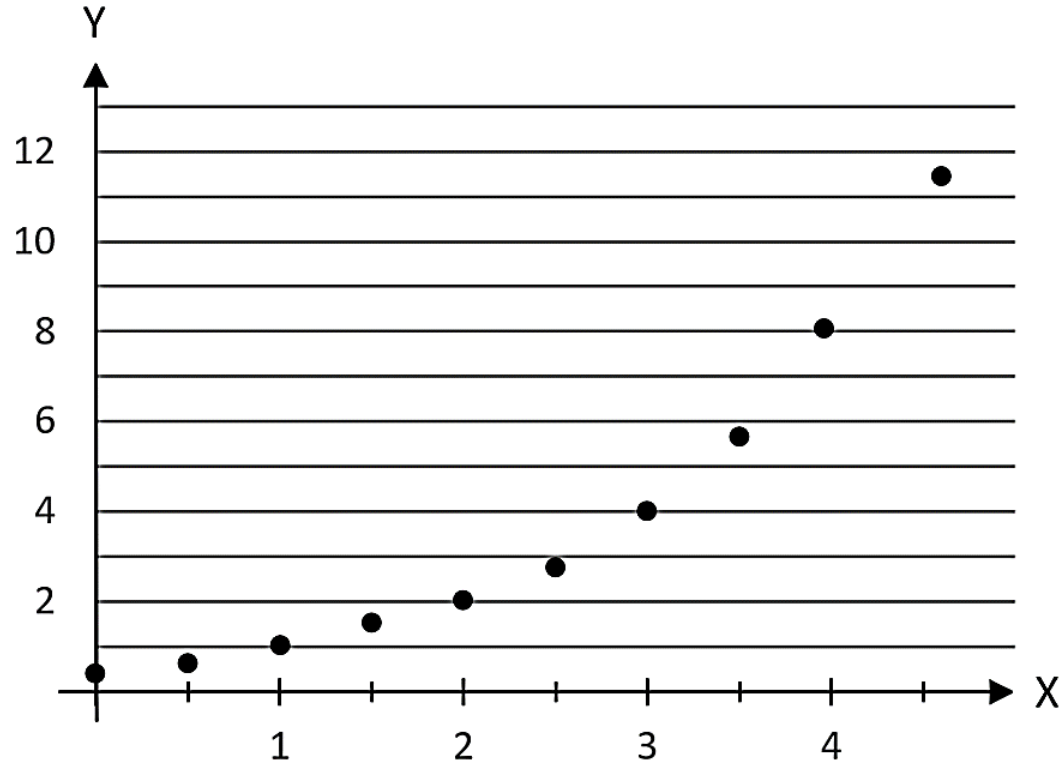
# QUESTIONS

3. When water is heated in a closed system, the vapour pressure increases slowly at first and then more rapidly. As the water reaches the boiling point of  $100^{\circ}\text{C}$ , the vapour pressure reaches 1 atm, known as 1 standard atmosphere. Which of the following models best describes the increase in vapour pressure as water is heated to its boiling point?
- A. Linear
  - B. Quadratic
  - C. Cubic
  - D. Exponential



# QUESTIONS

4.



Which of the following equations best models the data shown in the scatterplot above?

A.  $y = \frac{1}{2}x$

B.  $y = \left(\frac{1}{2}\right)^x$

C.  $y = \frac{1}{2}(2^x)$

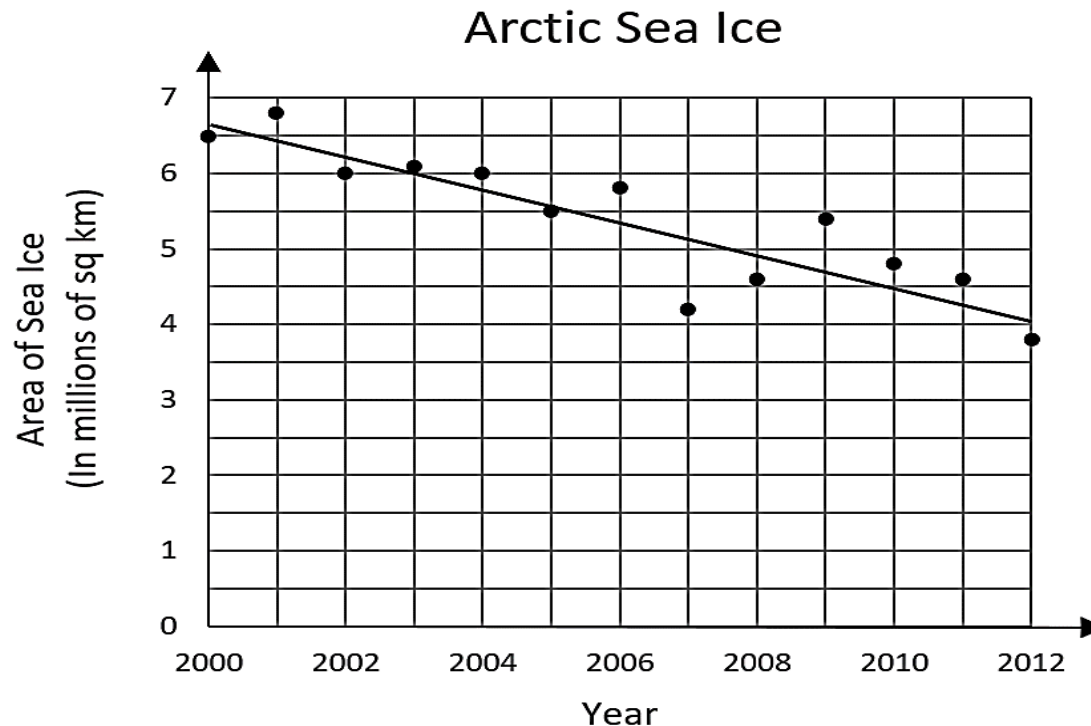
D.  $y = \frac{3}{2}x - 1$

# QUESTIONS

## Refer to the data below for Q5 to Q7

Sea ice extent is a measurement of the area of ocean with at least 15% sea ice. The graph below shows data for the extent of Arctic Sea ice between 2000 and 2012 as reported by the National Snow and Ice Data Centre. The line of best fit is also shown.

The equation of the line is  $A(t) = -0.187t + 380.5$ , where  $A(t)$  represents the area of measurable sea ice (in millions of sq km) in the Arctic Ocean in the year  $t$ .



# QUESTIONS

5. Based on the equation of the line of best fit, which of the following statements accurately describes the change in the amount of measurable Arctic Sea ice during the given time period?
- A. The amount of sea ice increased approximately 187,000 square kilometers per year.
  - B. The amount of sea ice increased approximately 187 million square kilometers per year.
  - C. The amount of sea ice decreased approximately 187,000 square kilometers per year.
  - D. The amount of sea ice decreased approximately 187 million square kilometers





# QUESTIONS

6. Assuming the trend of the data continues, what is the predicted area, in millions of square kilometers, of measurable Arctic Sea ice in the year 2020?
- A. 1.5
  - B. 2.5
  - C. 2.76
  - D. 3.81



# QUESTIONS

7. Assuming the trend of the data continues, in what year will the measurable sea ice in the Arctic Ocean cease to exist?
- A. 2035
  - B. 2040
  - C. 2020
  - D. 2050



# QUESTIONS

8. Number of Graduates by focus and Year

School Focus (District 1)	2013	2014
Career and Technical Education (CTE)	120	115
Fine and performing Arts	146	151
International Studies	84	104
Science, Technology, Engineering and Math (STEM)	163	163
World Languages	112	117

A magnet school is a free public school that has a focused theme. According to the table above, what was the increase in the total number of graduates in five of these magnet schools in District 1 from 2013 to 2014?

- A. 25
- B. 30
- C. 35
- D. 40

# QUESTIONS

9. Luge is a winter sport in which a person slides down an ice track foot first on a small sled. The luger lies supine (on his back) and uses his calf and shoulder muscles to steer the sled. Below is a summary of the times, in seconds, of three lugers' practice runs on a track in Utah.

Run	Marcelle	Aaron	Danielle
1	59.209	55.302	56.85
2	57.916	52.631	55.414
3	58.402	57.914	54.65
4	58.808	53.215	55.845
Mean	58.584	54.766	55.67
Std.Dev.	0.554	2.392	0.918

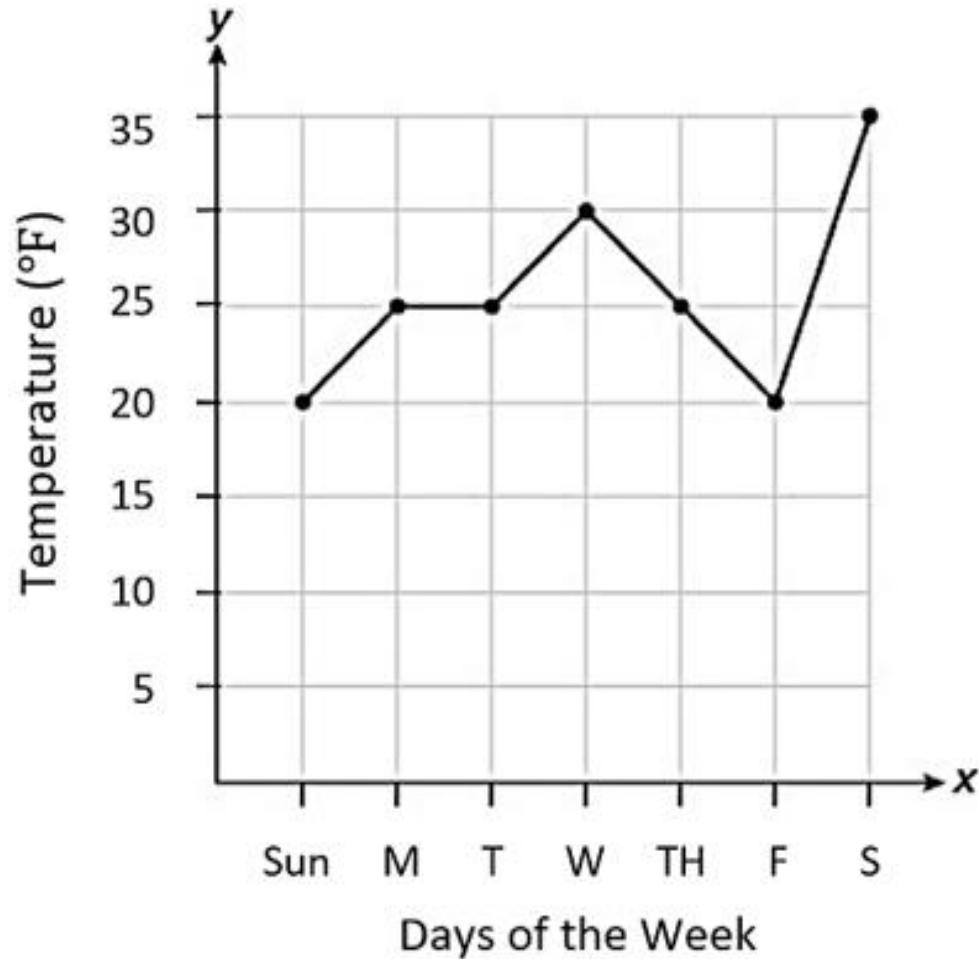
Which of the following conclusions can be drawn based on the data in the table?

- A. Aaron performed the least consistently because his mean time is the lowest.
- B. Marcelle performed the least consistently because his mean time is the highest.
- C. Aaron performed the most consistently because his standard deviation is the highest.
- D. Marcelle performed the most consistently because his standard deviation is the lowest.



# QUESTIONS

10.

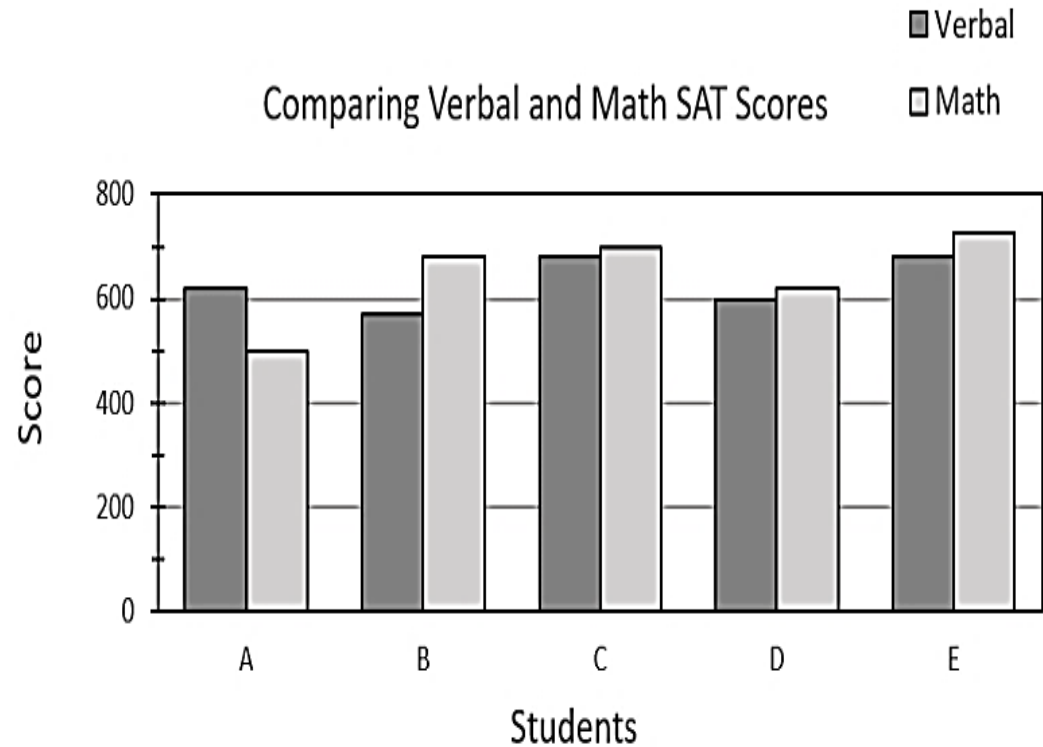


The graph above shows the average daily temperature during a particular week January in a certain city. Which statement best describes the temperature data in the graph above?

- A. median = mean
- B. mean < mode
- C. median = mode
- D. mean = mode

# QUESTIONS

11.



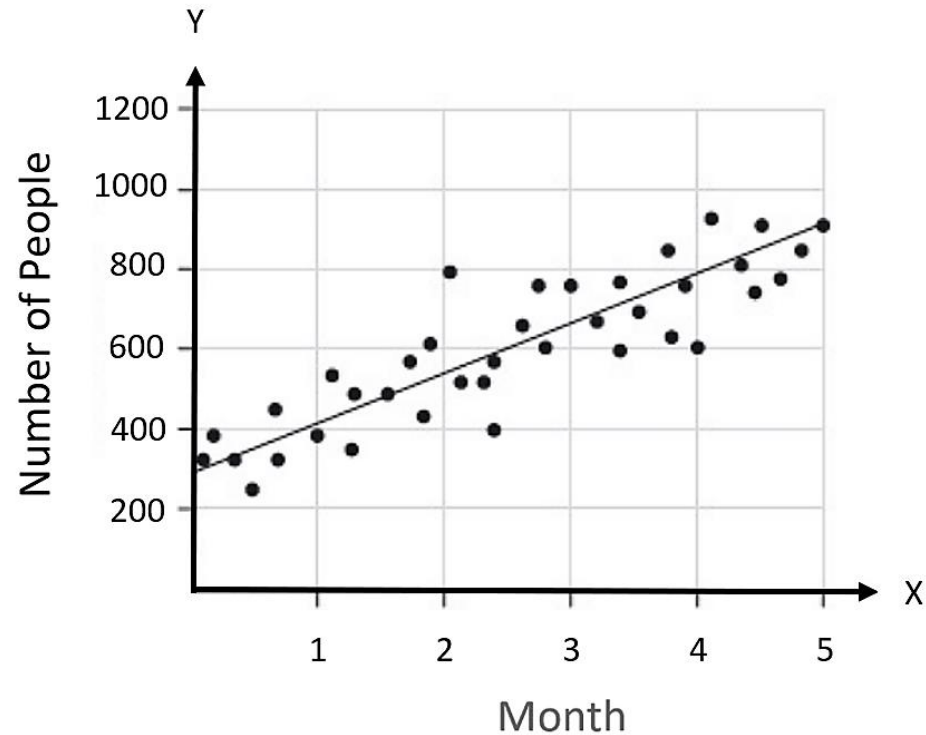
The bar graph above shows the verbal and math SAT scores for five students labelled A through E. If a scatterplot of the data in the bar graph is made such that the math SAT score for each student is plotted along the x-axis and their verbal SAT score is plotted along the y-axis, how many of the data points would lie above the line  $y = x$ ?

- A. 1
- B. 2
- C. 3
- D. 4



# QUESTIONS

Refer to the data below for Q12 to Q14



A new fitness class was started at several fitness clubs owned by the same company. The scatterplot shows the total number of people attending the class during the first five months in which the class was offered. The line of best fit is drawn.

# QUESTIONS

12. For month 4, the predicted number of people attending the class was approximately what percent greater than the actual number of people attending the class?
- A. 15%
  - B. 20%
  - C. 33.33%
  - D. 36%





# QUESTIONS

13. During the five-month period, the average increase in the number of people attending the class per month is closest to which of the following?
- A. 80
  - B. 100
  - C. 120
  - D. 140



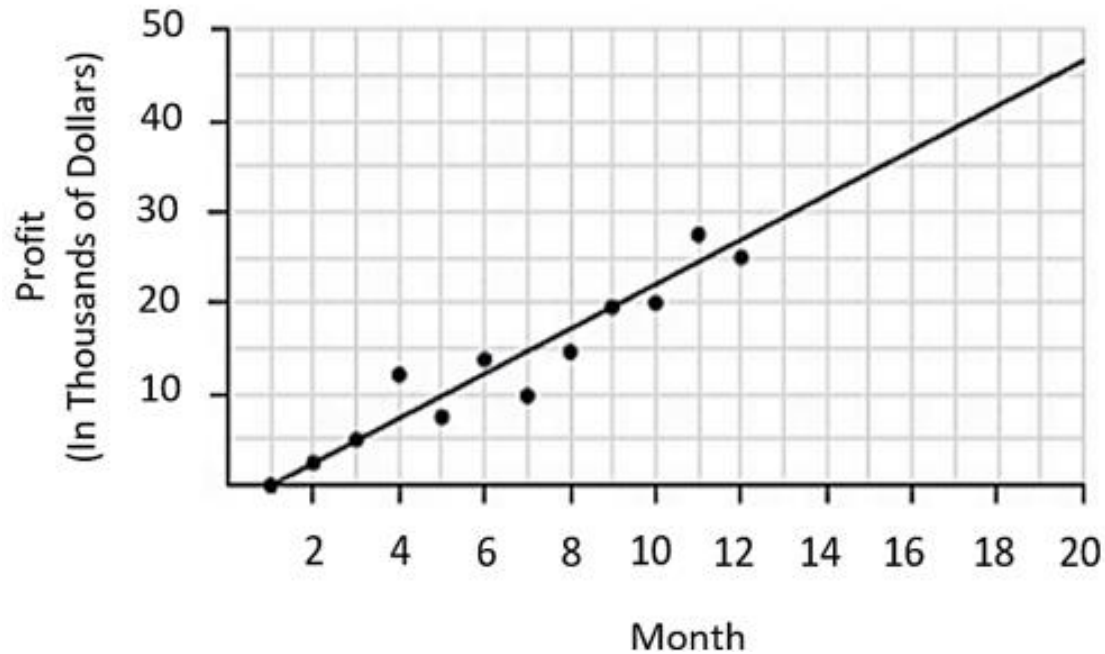
# QUESTIONS

- 14 At the beginning of which month did the actual number of people attending the class differ by the greatest amount from the number predicted by the line of best fit?
- A. month 2
  - B. month 3
  - C. month 4
  - D. month 5



# QUESTIONS

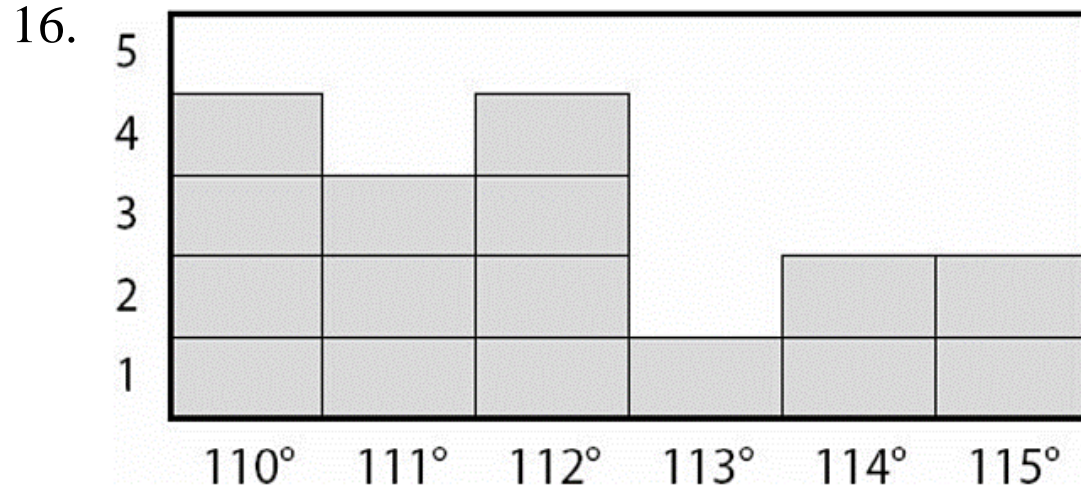
15.



The scatterplot above shows the profit, by month, for a new company for the first year of operation. A line of best fit is also shown. Using this line, by what dollar amount did the profit in the 18th month exceed the profit in the 13th month?

- A. \$5,000
- B. \$7,750
- C. \$12,500
- D. \$15,000

# QUESTIONS



The bar graph above displays the number of temperature ratings at each value from a sample, measured in degrees Fahrenheit. What was the average temperature reading? (Ignore degree sign when inputting the answer)

# QUESTIONS

17

Planet Data of Solar System		
Planet	Distance from the Sun (billion meters)	Orbital Period (Earth years)
Mercury	57.9	0.241
Earth	149.6	1
Mars	227.9	1.88
Saturn	Z	29.5
Uranus	2870	84
Planet X	20,000	Y

The chart above shows our Solar System's planetary data applied to the Kepler's Third Law, which states that the square of the period of any planet is proportional to the cube of its distance from the Sun. For any planets in the Solar System, the square of the orbital period divided by the cube of its distance from the Sun should be a constant. If Saturn has the period of 29.5 Earth years, find its distance from the Sun, in billion meters? (Round your answer to the nearest whole number.)



# QUESTIONS

18

Tourists to Australia in 2006 (in thousands)			
Country of Origin	Stayed up to 2 weeks	Stayed longer than 2 weeks	Total
Italy	12	39	51
China	87	221	308
United States of America	297	159	456
United Kingdom	291	443	734
Canada	34	76	110
New Zealand	875	201	1,076
Total	1,596	1,139	2,735

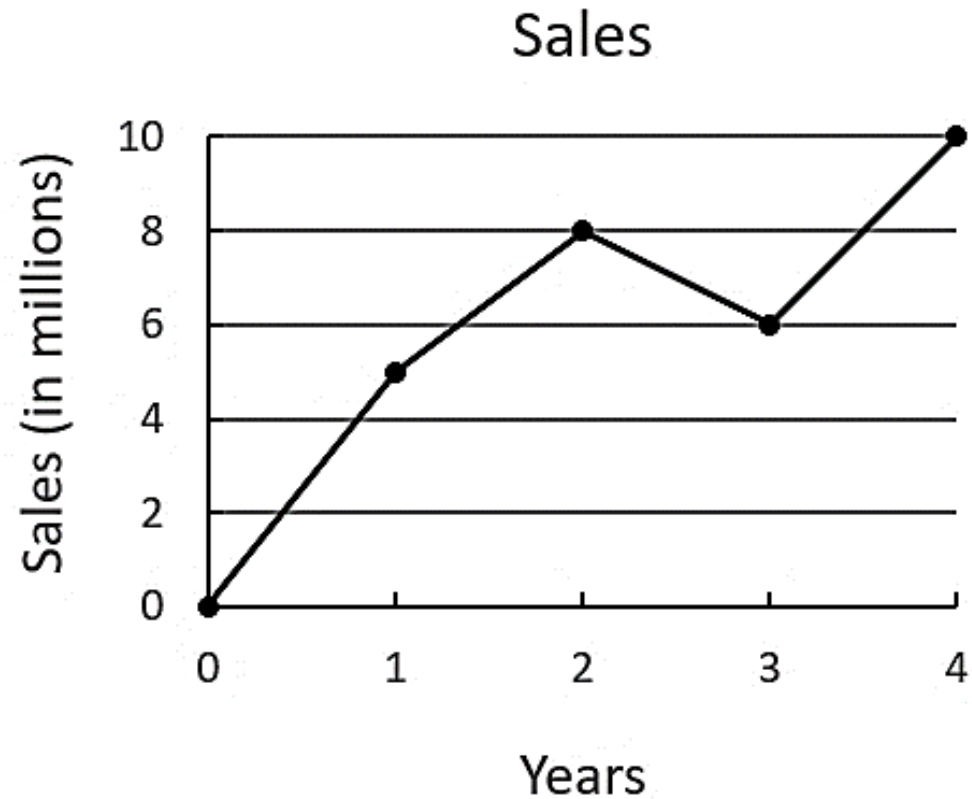
The table gives figures for tourism in Australia in 2006. According to the table, which of the following statements about tourists visiting Australia in 2006 are true?

- I. The probability that a Canadian tourist stayed for more than 2 weeks is approximately 69%.
  - II. The probability that a tourist who stayed for more than 2 weeks was from China is approximately 19%.
  - III. The probability that a randomly selected tourist was from the United Kingdom and stayed more than 2 weeks is approximately 60%.
- A. I only  
B. I and II only  
C. I, II, and III  
D. III only



# QUESTIONS

19.



In the following graph, what is the percent increase of sales from the third to the fourth year in the chart below? (*Round your answer to the nearest integer.*)

# QUESTIONS

20.

Materials Recycled by States in 2008 (in thousands of tons)			
Type of Materials Recycled	Arizona	New Mexico	Nevada
Paper Fiber	373	105	247
Iron/Steel Scrap	5	87	1010
Plastics	18	3	12
Glass	22	0	81
Aluminum	13	4	27

A waste management survey collected data about the types of materials that were recycled by three different states in 2008. The table shows the approximate amount of each material recycled measured in thousands of tons. Based on the information in the table, as a percentage, approximately what is the relative frequency of plastics recycled in New Mexico in plastics recycled in all three states combined?

- A. 2%
- B. 9%
- C. 10%
- D. 25%







*Thank you*