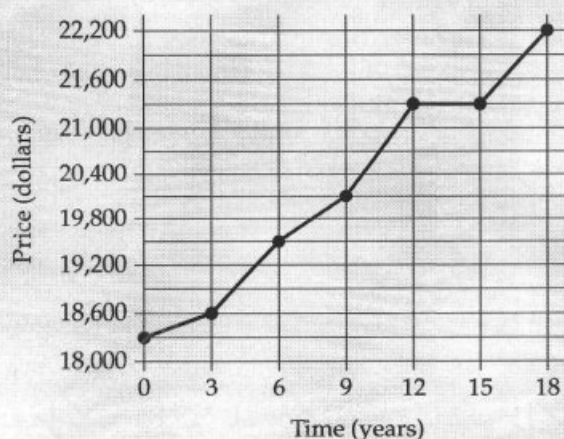


23

Reading Data

The SAT will test your ability to read and interpret bar charts, line graphs, and scatterplots. These questions tend to be easier because the graphs themselves are self-explanatory once you've seen a few examples and any math involved is generally straightforward. In fact, there's no math in this chapter that we haven't already covered, so we'll just look at one example and then it's off to the exercise.

EXAMPLE 1:



The line graph shows the value of a watch, in dollars, appraised every 3 years after it was manufactured. What is the greatest average rate of change in the value of the watch, in dollars per year, between two successive appraisals shown in the graph?

Average rate of change was discussed briefly in the "Rates" chapter. It's the change in a quantity divided by the elapsed time. In other words, it's the slope. The greater the average rate of change between two points, the greater the slope between them.

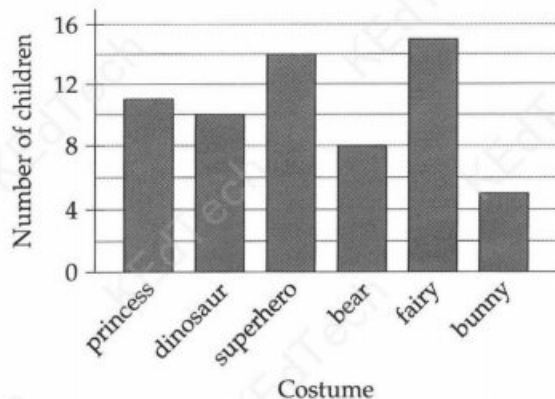
In this line graph, the segment from 9 to 12 years has the greatest slope and therefore the greatest average rate of change:

$$\text{Avg. rate of change}_{(9 \text{ to } 12)} = \frac{\text{Change in price}}{\text{Elapsed time}} = \frac{\$21,300 - \$20,100}{12 \text{ years} - 9 \text{ years}} = \frac{\$1,200}{3 \text{ years}} = \boxed{400} \text{ dollars per year}$$

EXERCISE: Answers for this exercise start on page 402.

1

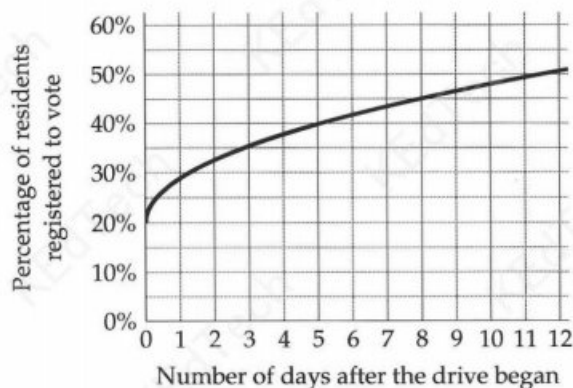
The bar graph shows the distribution of costumes worn by children at a school party.



Based on the graph, how many children did not wear a "dinosaur" costume or a "fairy" costume?

2

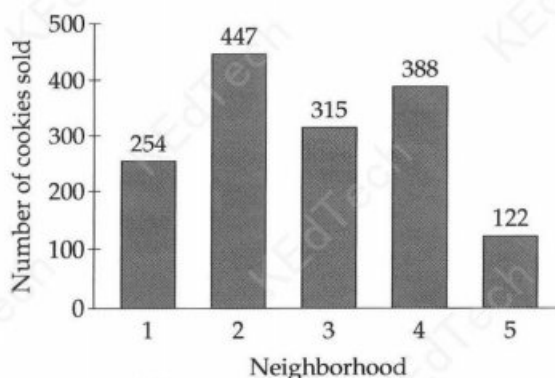
The graph shows the percentage of residents in a town registered to vote after a voter registration drive began.



Approximately how many days did it take after the registration drive began for 45% of the residents to be registered to vote?

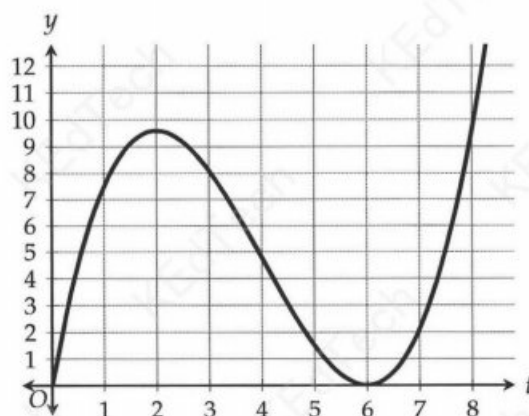
- A) 3
- B) 5
- C) 8
- D) 10

3



A local youth organization sold cookies in five different neighborhoods. The bar graph shows the number of cookies sold in each of the five neighborhoods. How many more cookies were sold in neighborhoods 2 and 4 than were sold in neighborhoods 1, 3, and 5?

4

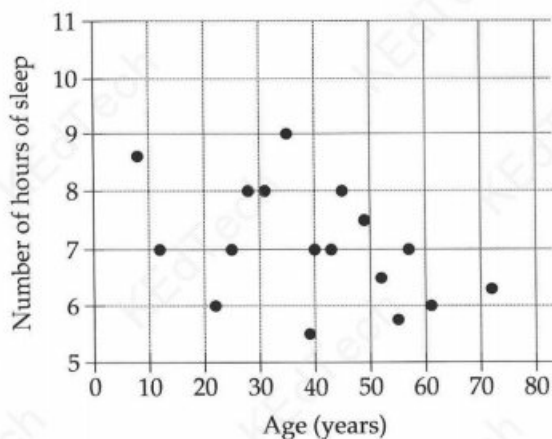


The graph shown models the kinetic energy, y , in joules, of a ball t seconds after an experiment began. For which of the following intervals of time was the kinetic energy of the ball strictly decreasing?

- A) From $t = 0$ to $t = 2$
- B) From $t = 1$ to $t = 4$
- C) From $t = 3$ to $t = 5$
- D) From $t = 4$ to $t = 7$

5

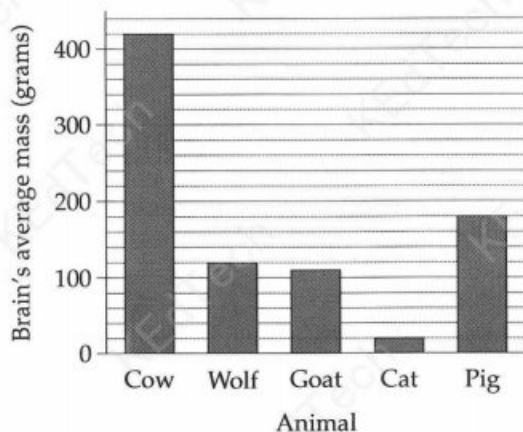
Researchers surveyed a group of 17 candidates applying for the same job. The scatterplot shows their ages and the number of hours they slept the night before the job interview.



Which of the following is the closest to the age, in years, of the candidate who slept the least number of hours the night before the job interview?

- A) 35
- B) 40
- C) 55
- D) 60

6



According to the bar graph shown, the average mass of a wolf's brain is what fraction of the average mass of a pig's brain?

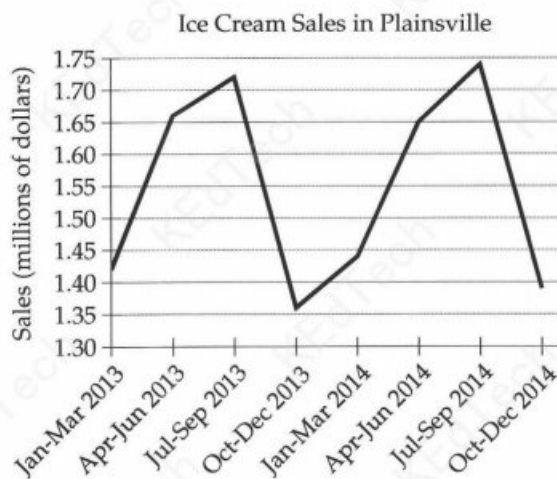
7



The graph models the body temperature y , in degrees Celsius, of a pronghorn antelope x minutes after the end of a 3-mile run, where $0 \leq x \leq 10$. Based on the model, which of the following is closest to the predicted body temperature, in degrees Celsius, of the pronghorn antelope at the end of its 3-mile run?

- A) 36
- B) 37.5
- C) 39
- D) 40.5

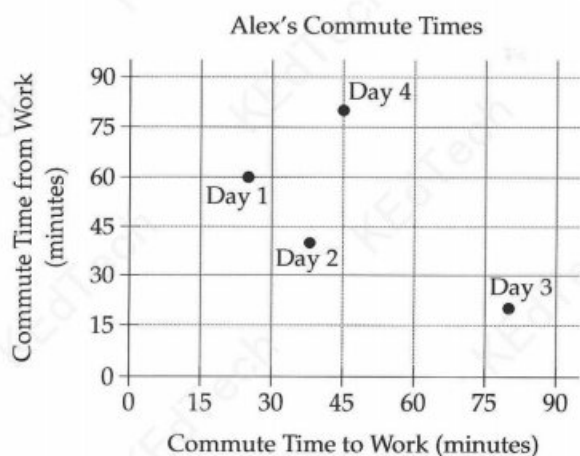
8



According to the line graph shown, ice cream sales in Plainsville were highest both in 2013 and in 2014 during which three-month period?

- A) January to March
- B) April to June
- C) July to September
- D) October to December

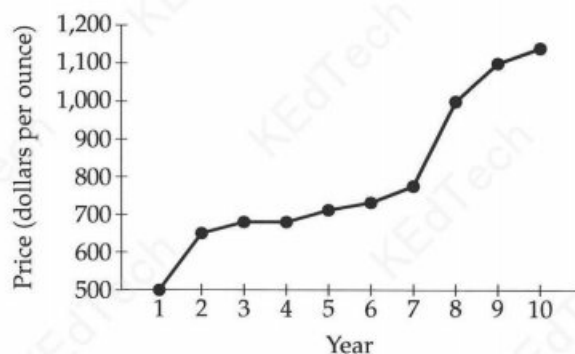
9



The scatterplot shows Alex's commute time to work and his commute time from work for four days. For which of the four days was his total commute time to and from work the greatest?

- A) Day 1
- B) Day 2
- C) Day 3
- D) Day 4

10

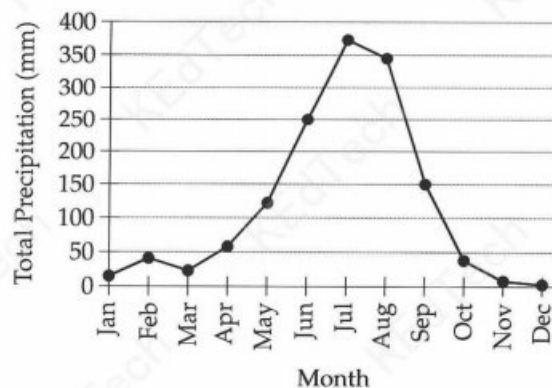


The graph shows the price of platinum, in dollars per ounce, over a 10-year period. Between which two years was the average rate of change, in dollars per ounce per year, of the price of platinum the greatest?

- A) Year 1 and year 2
- B) Year 3 and year 4
- C) Year 7 and year 8
- D) Year 8 and year 9

11

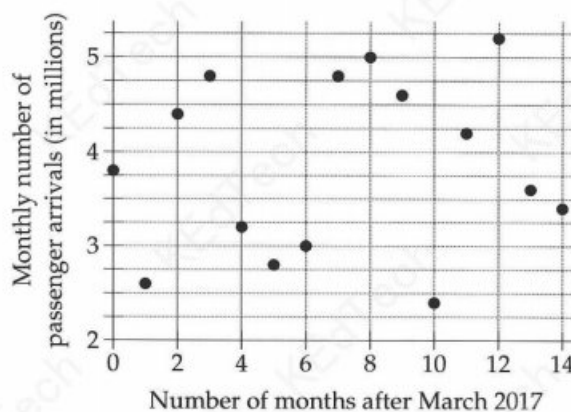
The line graph shows the monthly total precipitation in Kathmandu from January to December last year.



Based on the line graph, the total precipitation in September was what percentage of the total precipitation in June?

- A) 40%
- B) 50%
- C) 60%
- D) 75%

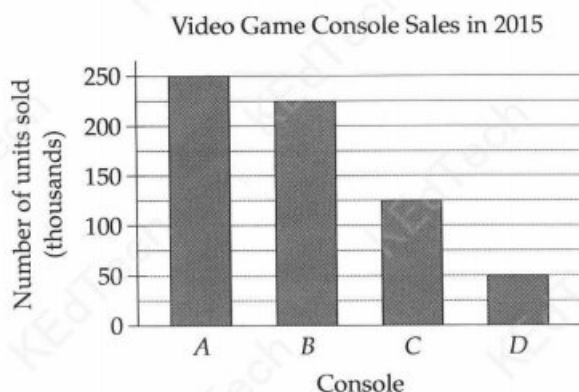
12



The graph shown models the monthly number of passenger arrivals, in millions, at a certain airport from March 2017 to May 2018. According to the model, which of the following is closest to this airport's monthly number of passenger arrivals, in millions, for March 2017?

- A) 2.4
- B) 3.3
- C) 3.8
- D) 5.2

13

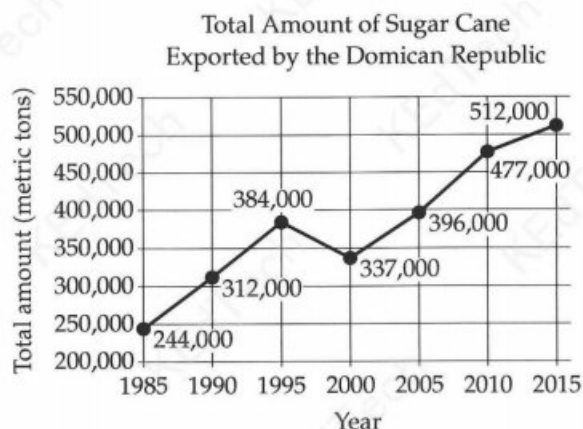


The bar graph shows the number of units sold in 2015 for four different video game consoles. The prices of consoles A, B, C, and D in 2015 were \$100, \$150, \$250, and \$300, respectively. Which of the four consoles generated the highest total revenue in 2015?

- A) Console A
- B) Console B
- C) Console C
- D) Console D

14

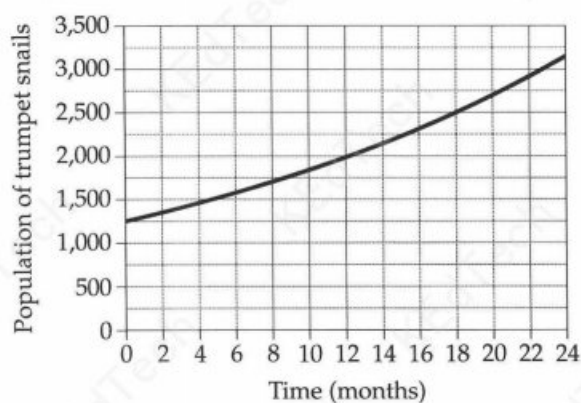
The line graph shows the total amount, in metric tons, of sugar cane exported by the Dominican Republic from 1985 to 2015.



What is the average rate of change, in metric tons per year, of the total amount of sugar cane exported by the Dominican Republic from 2005 to 2010?

15

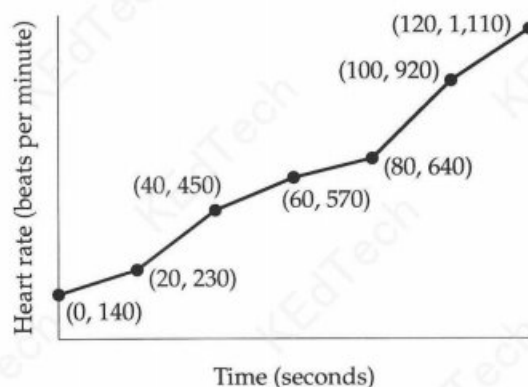
The graph shown models the population of trumpet snails in a certain area over time, in months, after an initial population was introduced.



According to the graph, how many months does it take for the population of trumpet snails in the area to double?

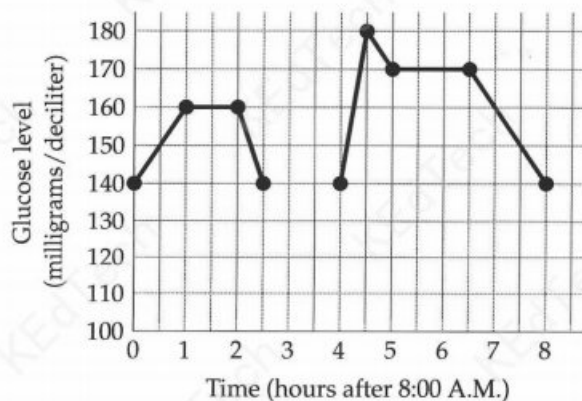
- A) 5
- B) 9
- C) 12
- D) 18

16



The line graph shows the heart rate, in beats per minute, of a hummingbird measured every 20 seconds. What is the smallest average rate of change in the hummingbird's heart rate, in beats per minute per second, between two measurements shown in the graph?

17

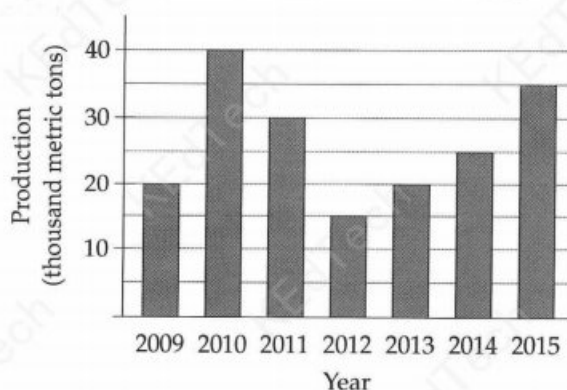


On the day of a medical evaluation, Greg ate breakfast at 8:00 A.M. and lunch at 12:00 P.M. During each meal, doctors recorded his glucose levels in the graph shown until they were able to calculate his *glucose recovery time*, the time it took for his body's glucose level to return to its initial value at the start of the meal. According to the graph, by how many hours was Greg's glucose recovery time after lunch greater than his glucose recovery time after breakfast?

- A) 1.5
- B) 2
- C) 3
- D) 5.5

18

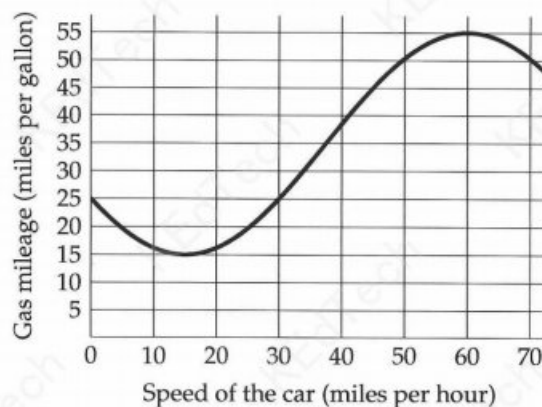
Annual Salt Production in the U.S.



Based on the bar graph shown, for which of the following two consecutive years was the percent increase in U.S. annual salt production equal in absolute value to the percent decrease from 2010 to 2011?

- A) 2009 to 2010
- B) 2012 to 2013
- C) 2013 to 2014
- D) 2014 to 2015

19



The graph models the gas mileage of a car, in miles per gallon, as a function of its speed, in miles per hour. Based on the model, how many gallons of gas are needed to drive this car for 5 hours at a constant speed of 30 miles per hour?