

## Mathematical Reasoning

132. Chris drove 100 kilometers from San Francisco to Santa Cruz in 2 hours and 30 minutes. What computation will give Chris' average speed, in kilometers per hour?

- A Divide 100 by 2.5.
- B Divide 100 by 2.3.
- C Multiply 100 by 2.5.
- D Multiply 100 by 2.3.

M03164

A flower shop delivery van traveled these distances during one week: 104.4, 117.8, 92.3, 168.7, and 225.6 miles. How many gallons of gas were used by the delivery van during this week?

133. What other information is needed in order to solve this problem?

- A The average speed traveled in miles per hour
- B The cost of gasoline per gallon
- C The average number of miles per gallon for the van
- D The number of different deliveries the van made

M00138

134. A shipping company has 25 offices that shipped 60,000 packages last week. The offices were open 6 days and used 80,000 kilowatt-hours of electricity. Which pieces of information given above are necessary to find the average number of packages shipped per day last week?

- A the number of offices and the number of packages
- B the number of packages and the amount of electricity used
- C the number of packages and the number of days open during the week
- D the number of days open during the week and the amount of electricity used

M10538

135. If  $n$  is any odd number, which of the following is true about  $n + 1$ ?

- A It is an odd number.
- B It is an even number.
- C It is a prime number.
- D It is the same number as  $n - 1$ .

M00155

136. The table below shows the flight times from San Francisco (S.F.) to New York (N.Y.).

Leave S.F. Time	Arrive N.Y. Time
8:30 A.M.	4:50 P.M.
12:00 noon	8:25 P.M.
3:30 P.M.	11:40 P.M.
9:45 P.M.	5:50 A.M.

Which flight takes the longest?

- A The flight leaving at 8:30 A.M.
- B The flight leaving at 12:00 noon
- C The flight leaving at 3:30 P.M.
- D The flight leaving at 9:45 P.M.

M00376

137. If  $a$  is a positive number and  $b$  is a negative number, which expression is always positive?

- A  $a - b$
- B  $a + b$
- C  $a \times b$
- D  $a \div b$

M10683

## Mathematical Reasoning

138. Use the addition problems below to answer the question.

$$\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$$
$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} = \frac{7}{8}$$
$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} = \frac{15}{16}$$
$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \frac{1}{32} = \frac{31}{32}$$

Based on this pattern, what is the sum of

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots + \frac{1}{1024}?$$

- A  $\frac{1001}{1024}$
- B  $\frac{1010}{1024}$
- C  $\frac{1023}{1024}$
- D  $\frac{1025}{1024}$

M21115

139. The table below shows the number of visitors to a natural history museum during a 4-day period.

Day	Number of Visitors
Friday	597
Saturday	1115
Sunday	1346
Monday	365

Which expression would give the BEST estimate of the total number of visitors during this period?

- A  $500 + 1100 + 1300 + 300$
- B  $600 + 1100 + 1300 + 300$
- C  $600 + 1100 + 1300 + 400$
- D  $600 + 1100 + 1400 + 400$

M11112

140. Which is the best estimate of  $326 \times 279$ ?

- A 900
- B 9,000
- C 90,000
- D 900,000

M00277

## Mathematical Reasoning

141. Marcus plans to buy a CD that has a regular price of \$13.99. It is on sale for 10% off, but Marcus will have to pay 7% sales tax. Which is the MOST reasonable estimate of the total cost of the CD including tax?
- A \$12.50
  - B \$13.50
  - C \$14.50
  - D \$15.50

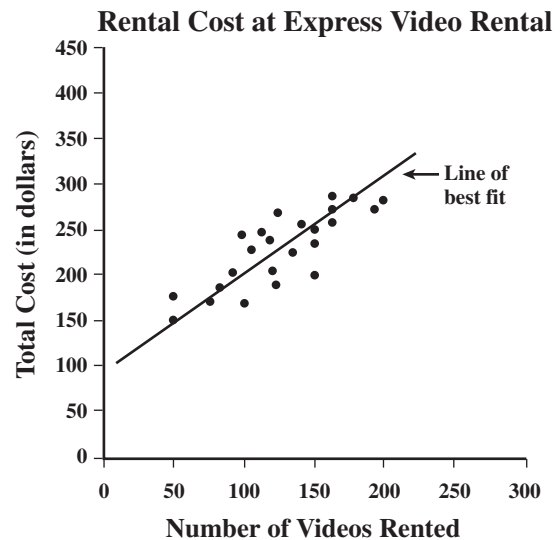
M11869

142. The temperature on a mountain peak was 7 degrees Fahrenheit ( $^{\circ}\text{F}$ ) at 6:00 p.m. By 8:00 p.m., the temperature had dropped to  $0^{\circ}\text{F}$ . If the temperature continued to drop at about the same rate, which is the BEST estimate of the temperature at 11:00 p.m.?
- A  $-20^{\circ}\text{F}$
  - B  $-14^{\circ}\text{F}$
  - C  $-10^{\circ}\text{F}$
  - D  $-9^{\circ}\text{F}$

M20451

143. Sally paid \$1.89 for 5 plums. About how many plums would she get for \$10?
- A 4
  - B 5
  - C 10
  - D 25

M25031

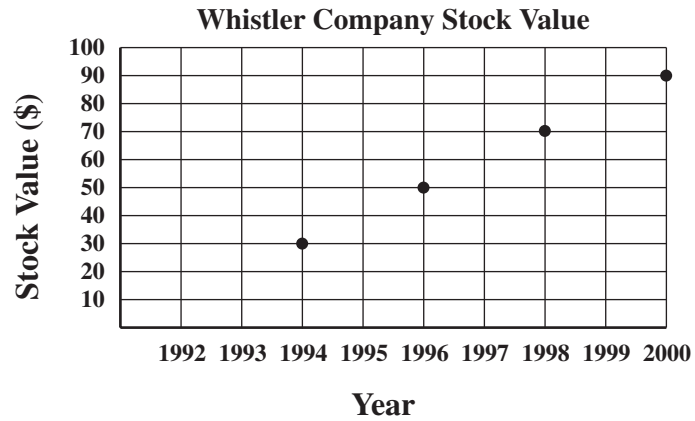


144. Using the line of best fit shown on the scatterplot above, which of the following best approximates the rental cost per video to rent 300 videos?
- A \$3.00
  - B \$2.50
  - C \$2.00
  - D \$1.50

M02209

## Mathematical Reasoning

145. The graph below shows the value of Whistler Company stock at the end of every other year from 1994 to 2000.



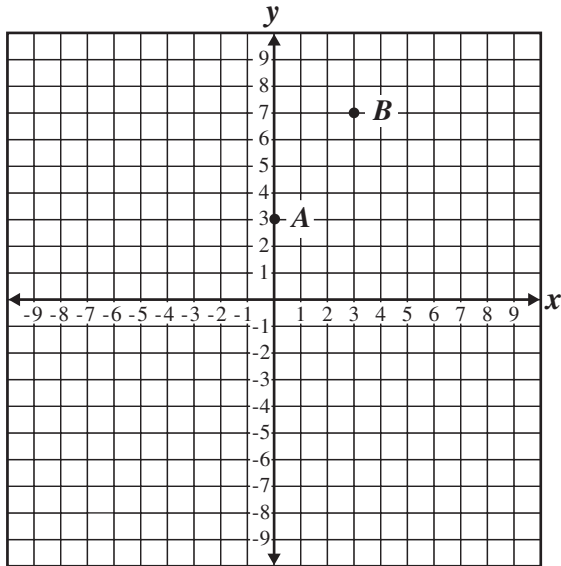
From this graph, which of the following was the most probable value of Whistler Company stock at the end of 1992?

- A -\$10
- B \$1
- C \$10
- D \$20

M02898

## Mathematical Reasoning

146. If a line passes through the points  $A$  and  $B$  shown below, approximately where does the line cross the  $x$ -axis?



- A between  $-3$  and  $-2$
- B between  $0$  and  $-1$
- C between  $0$  and  $1$
- D between  $1$  and  $2$

M10702

147. The table below shows values for  $x$  and corresponding values for  $y$ .

$x$	$y$
21	3
14	2
28	4
7	1

Which of the following represents the relationship between  $x$  and  $y$ ?

- A  $y = \frac{1}{7}x$
- B  $y = 7x$
- C  $y = x - 6$
- D  $y = x - 18$

M00377

148. The winning number in a contest was less than 50. It was a multiple of 3, 5, and 6. What was the number?

- A 14
- B 15
- C 30
- D It cannot be determined.

M00393

## Mathematical Reasoning

149. Lia used the following process to find the slope of the line described by the equation  $3y + 5x = 12$ .

Step 1: Subtract $5x$ from each side.	$3y = -5x + 12$
Step 2: Divide each side by 3.	$y = -\frac{5}{3}x + 4$
Step 3: The slope of $y = mx + b$ is $m$ .	Slope is $-\frac{5}{3}$

According to Lia's method, which expression gives the slope of the line described by the equation  $ax + by = c$ ?

- A  $-\frac{a}{b}$
- B  $\frac{a}{b}$
- C  $-\frac{b}{a}$
- D  $\frac{b}{a}$

Len runs a mile in 8 minutes. At this rate how long will it take him to run a 26-mile marathon?

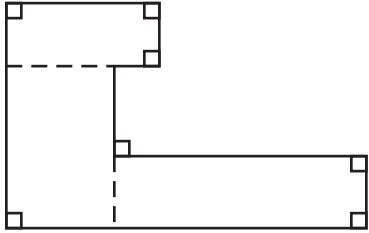
150. Which of the following problems can be solved using the same arithmetic operations that are used to solve the problem above?
- A Len runs 26 miles in 220 minutes. How long does it take him to run each mile?
- B A librarian has 356 books to place on 18 shelves. Each shelf will contain the same number of books. How many books can the librarian place on each shelf?
- C A cracker box weighs 200 grams. What is the weight of 100 boxes?
- D Each basket of strawberries weighs 60 grams. How many baskets can be filled from 500 grams of strawberries?

M00137

M11892

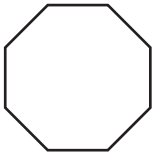
*Mathematical Reasoning*

151. Mia found the area of this shape by dividing it into rectangles as shown.

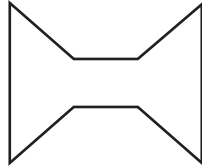


Mia could use the same method to find the area for which of these shapes?

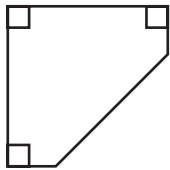
A



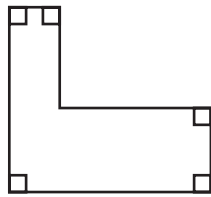
C



B



D



M25128