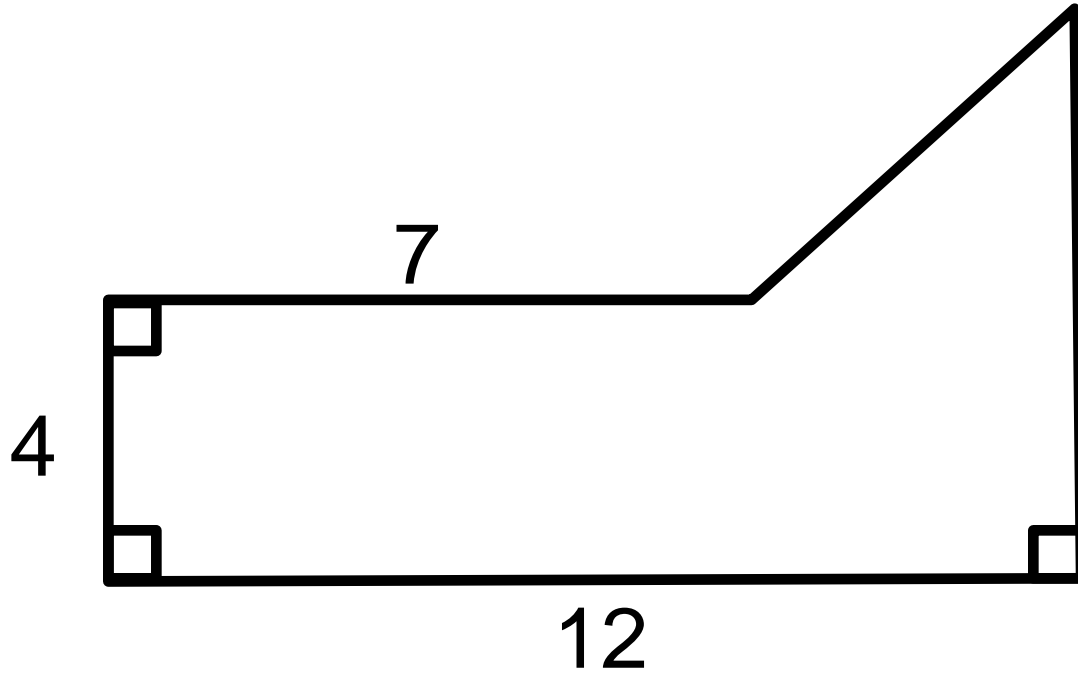
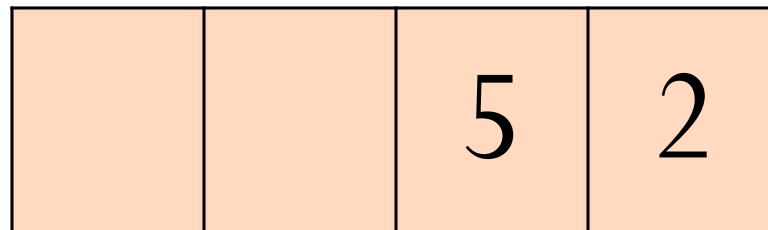


SAT Questions Part 2

91) The area of the figure below is 78. What is its perimeter?



Note: Figure not drawn to scale.



Difficulty Level 4

92) Every sophomore at Hillside High School is required to study at least one language among Spanish, French, and Latin, but no one may study more than two. If 120 sophomores study Spanish, 80 study French, and 75 study Latin, and 50 study two of the three languages, how many sophomores are there at Hillside High School?

	2	2	5
--	---	---	---

Difficulty Level 5

Practice Test 2

Section 7 – 16 questions

93) If four apples cost 20 cents, then, at this rate, how much would ten apples cost?

A) \$.40

B) \$.50

C) \$.60

D) \$.70

E) \$.80

Difficulty Level 2

94) If $2^b = 8$, then $3^b =$

A) 6

B) 9

C) 27

D) 64

E) 81

Difficulty Level 2

95) How much greater is the average (arithmetic mean) of a , b , and 18 than the average of a , b , and 12?

A) 2

B) 3

C) 4

D) 5

E) 6

Difficulty Level 3

96) The first day of a particular month is a Tuesday. What day of the week will it be on the 31st day of the month?

A) Wednesday

B) Thursday

C) Friday

D) Saturday

E) Sunday

Difficulty Level 3

97) How many integer pairs (m, n) satisfy the statements $0 < m + n < 50$ and $\frac{m}{n} = 8$?

A) 5

B) 6

C) 7

D) 8

E) more than 8

Difficulty Level 3

98) If $y\%$ of 50 is 32, then what is 200% of y ?

A) 16

B) 32

C) 64

D) 128

E) 256

Difficulty Level 3

99) For $x > 0$, the function $g(x)$ is defined by the equation $g(x) = x + x^{1/2}$. What is the value of $g(16)$?

A) 16

B) 20

C) 24

D) 64

E) 272

Difficulty Level 4

100) In the figure below, if the slope of \overline{AB} is $-\frac{3}{4}$, what is the area of $\triangle ABO$?

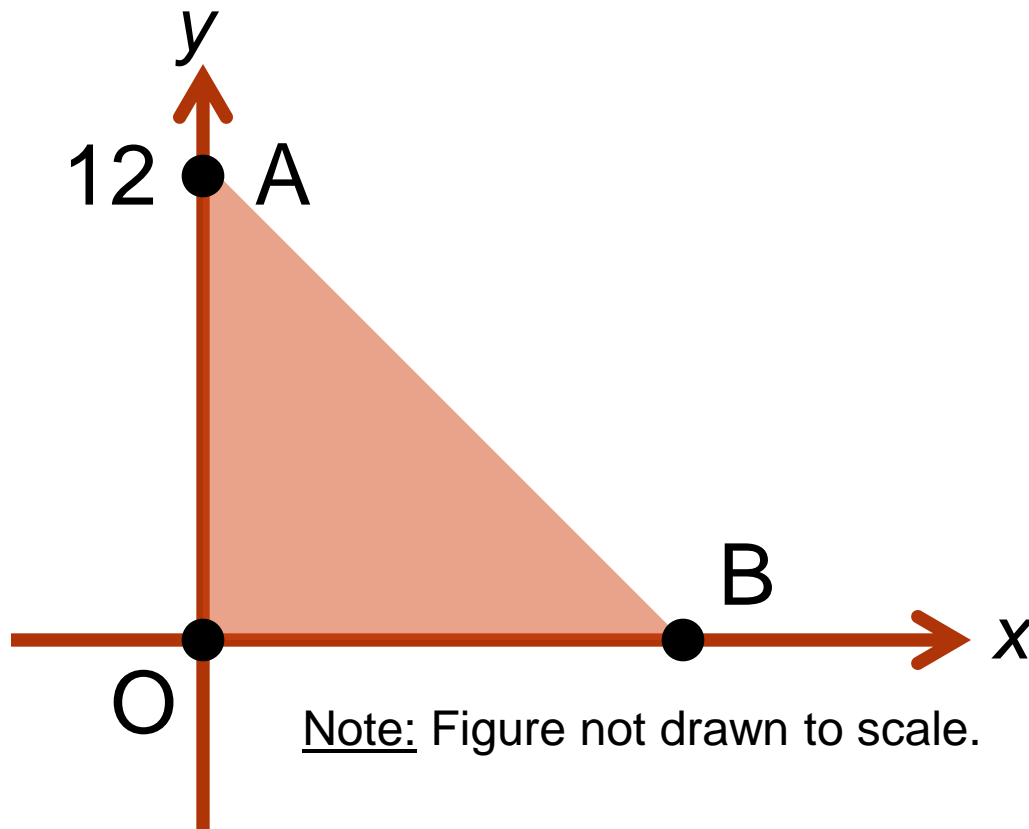
A) 54

B) 72

C) 96

D) 108

E) 192



Difficulty Level 3

-1, 1, 2, -1, 1, 2, -1, 1, 2, ...

101) The sequence above continues according to the pattern shown. What is the sum of the first 25 terms of this sequence?

A) 15

B) 16

C) 18

D) 19

E) 21

Difficulty Level 4

102) A jar contains only white and blue marbles of identical size and weight. The ratio of the number of white marbles to the number of blue marbles is 4 to b . If the probability of choosing a white marble from the jar at random is $\frac{1}{4}$, then what is the value of b ?

A) 1

B) 2

C) 6

D) 12

E) 16

Difficulty Level 4

103) The area of a right triangle is 10 square centimeters. If the length of each leg, in centimeters, is a positive integer, then what is the *least* possible length, in centimeters, of the hypotenuse?

A) $\sqrt{29}$

B) $\sqrt{41}$

C) $\sqrt{101}$

D) $\sqrt{104}$

E) $\sqrt{401}$

Difficulty Level 3

104) If y is a number less than 0 but greater than -1 , which of the following expressions has the greatest value?

A) $100y$

B) y^2

C) y^3

D) y^4

E) y^5

Difficulty Level 4

If at least one wuzzle is grumpy, then some fuzzles are lumpy.

105) If the statement above is true, then which of the following must also be true?

- A) If all wuzzles are grumpy, then all fuzzles are lumpy.
- B) If no wuzzle is grumpy, then all fuzzles are lumpy.
- C) If all fuzzles are lumpy, then all wuzzles are grumpy.
- D) If no wuzzle is grumpy, then no fuzzle is lumpy.
- E) If no fuzzle is lumpy, then no wuzzle is grumpy.

Difficulty Level 4

106) Six busses are to carry 200 students on a field trip. If each bus must have no more than 40 students and no fewer than 30 students, then what is the greatest number of busses that can have 40 students?

A) 6

D) 3

B) 5

E) 2

C) 4

Difficulty Level 4

107) The volume of right cylinder A is twice the volume of right cylinder B. If the height of cylinder B is twice the height of cylinder A, then what is the ratio of the radius of cylinder A to the radius of cylinder B?

A) 1 to 2

D) 2 to 1

B) 1 to 1

E) 4 to 1

C) $\sqrt{2}$ to 1

Difficulty Level 5

108) In a garden that is divided into x rows of x squares each, w of the squares lie along the boundary of the garden. Which of the following is a possible value for w ?

A) 29

D) 46

B) 34

E) 55

C) 40

Difficulty Level 5

Practice Test 3

Section 2– 20 questions

109) If $(x + 4) + 7 = 14$, what is the value of x ?

A) 3

B) 7

C) 11

D) 17

E) 25

Difficulty Level 1

110) Erica spends \$.95 each day for her newspaper subscriptions. She would like to determine the approximate amount she spends during the month of July, which has 31 days. Which of the following would provide her with the best estimate?

A) $$.50 \times 30$

B) $\$1.00 \times 30$

C) $\$1.50 \times 30$

D) $$.50 \times 35$

E) $\$1.00 \times 35$

Difficulty Level 2

111) In the figure below, lines l , m , and n intersect in a single point. What is the value of $w + x$?

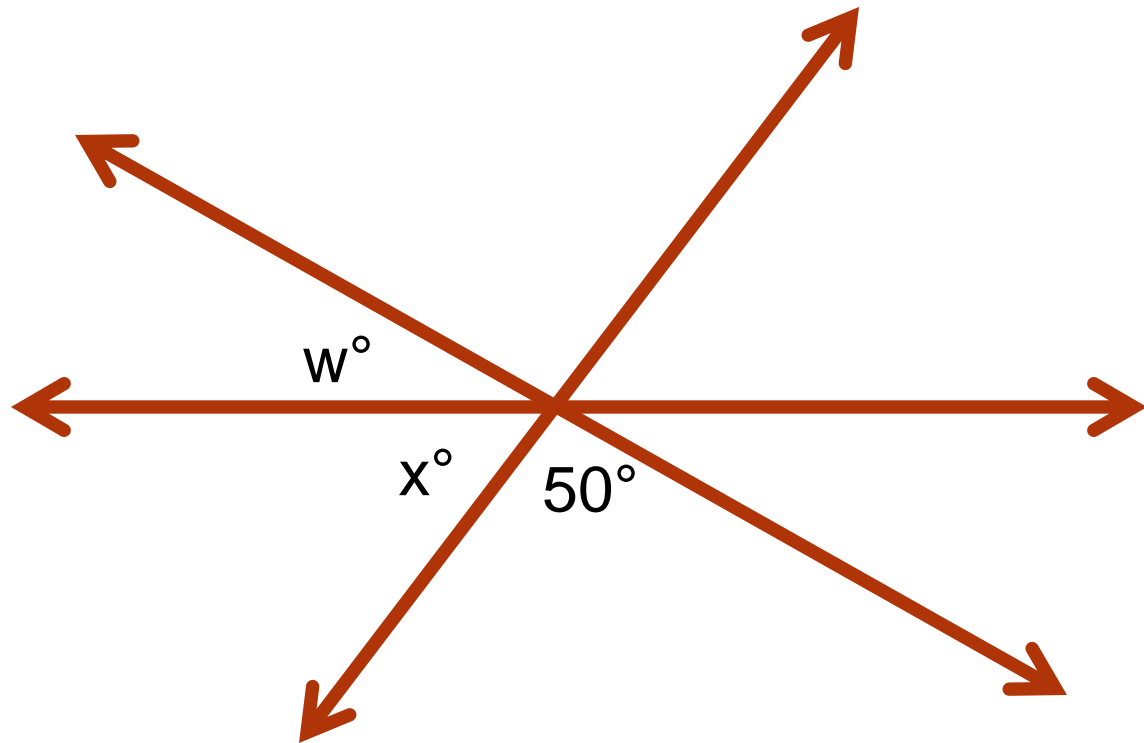
A) 40

B) 70

C) 90

D) 130

E) 140



Note: Figure not drawn to scale.

Difficulty Level 2

112) Let the function g be defined by the equation $g(x) = 3x+4$. What is the value of $g(5)$?

A) 8

B) 11

C) 15

D) 19

E) 23

Difficulty Level 3

113) If $x > y$, which of the following equations expresses the fact that when the difference between x and y is multiplied by their sum, the product is 18?

A) $(x - y)^2 = 18$

B) $(x + y)^2 = 18$

C) $(x - y) \div (x + y) = 18$

D) $x^2 - y^2 = 18$

E) $x^2 + y^2 = 18$

Difficulty Level 2

114) If $3\sqrt{x} - 7 = 20$, what is the value of x ?

A) 3

B) 9

C) 27

D) 36

E) 81

Difficulty Level 2

115) Chris buys a chocolate bar and a pack of gum for \$1.75. If the chocolate bar costs \$.25 more than the pack of gum, how much does the pack of gum cost?

A) \$.25

B) \$.50

C) \$.75

D) \$1.00

E) \$1.50

Difficulty Level 3

116) 40% of 80 is what percent of 96?

A) 20%

B) 30%

C) $33\frac{1}{3}\%$

D) 50%

E) $66\frac{2}{3}\%$

Difficulty Level 3

117) If l , m , and n are positive integers greater than 1, $lm = 21$, and $mn = 39$, then which of the following must be true?

A) $n > l > m$

B) $m > n > l$

C) $m > l > n$

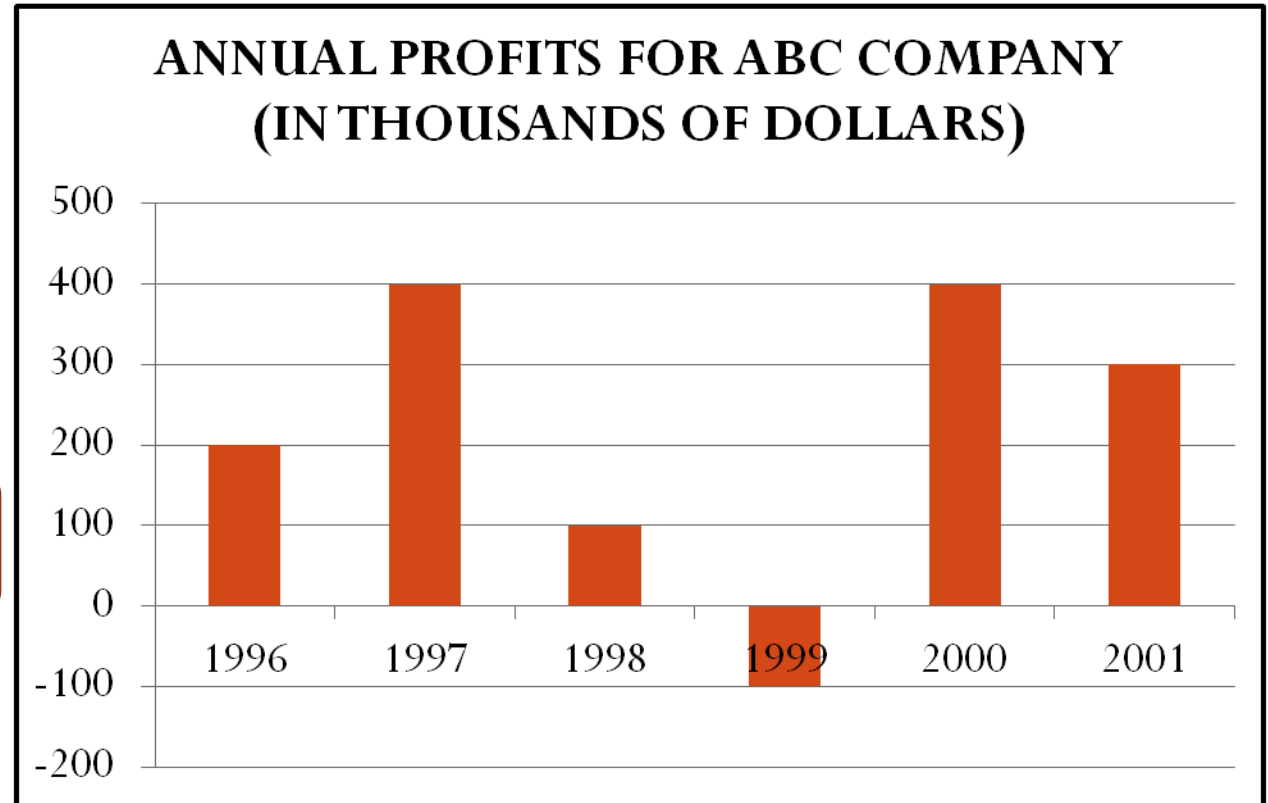
D) $l > n > m$

E) $n > m > l$

Difficulty Level 3

118) According to the graph below, ABC Company showed the greatest change in profits between which 2 years?

- A) 1996 and 1997
- B) 1997 and 1998
- C) 1998 and 1999
- D) 1999 and 2000
- E) 2000 and 2001



Difficulty Level 3

119) In a 9th-grade class, 12 students play soccer, 7 students play tennis, and 9 students play lacrosse. If 4 students play exactly two of the three sports and all other students play only one, how many students are in the class?

A) 28

B) 24

C) 20

D) 18

E) 16

Difficulty Level 4

120) The point $(14, 14)$ is the center of a circle, and $(2, 9)$ is a point on the circle. What is the length of the diameter of the circle?

A) 24

B) 26

C) 50

D) 144π

E) 169π

Difficulty Level 3

121) The population of Boomtown doubles every 18 months. In January of 2000, its population was exactly 12,000. At this rate, approximately when should the population reach 96,000?

A) January 2003

D) July 2007

B) July 2004

E) January 2012

C) January 2006

Difficulty Level 3

122) In how many different ways can five students of different heights be arranged in a line if the tallest student cannot be on either end?

A) 24

B) 25

C) 72

D) 96

E) 120

Difficulty Level 4

123) In the figure below, $a > 90$ and $b = c + 3$. If a , b , and c are all integers, what is the greatest possible value of b ?

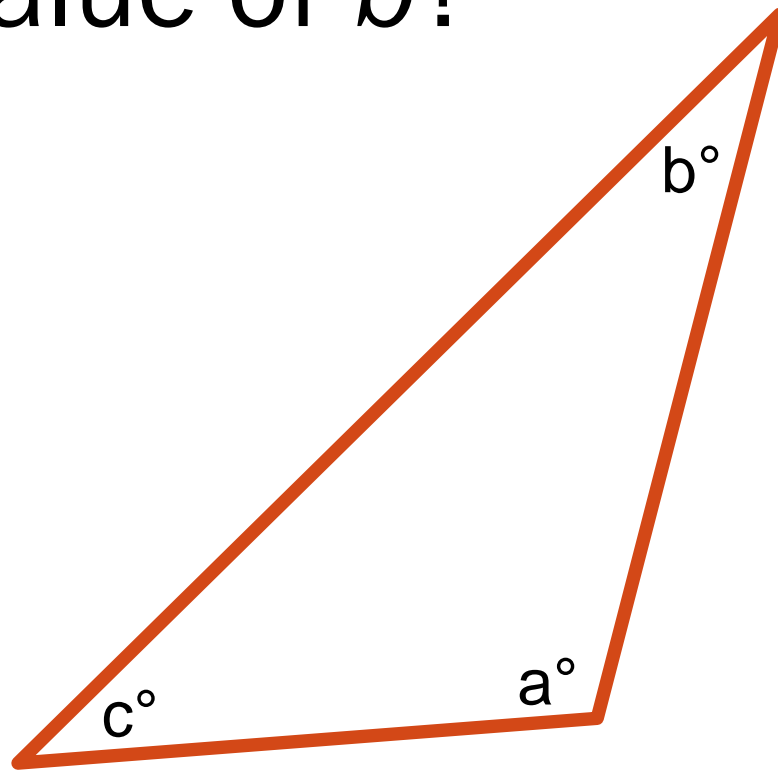
A) 43

B) 46

C) 60

D) 86

E) 89



Note: Figure not drawn to scale

Difficulty Level 4

124) In the figure below, $\triangle ACF$ is equilateral, with sides of length 4. If B , D , and E are the midpoints of their respective sides, what is the sum of the areas of the shaded regions?

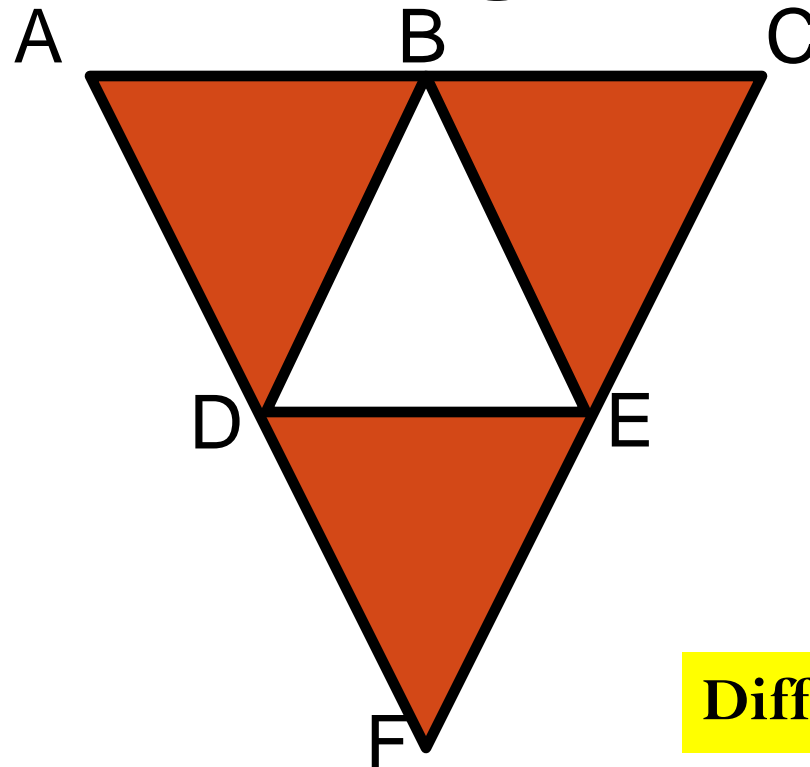
A) $3\sqrt{2}$

B) $3\sqrt{3}$

C) $4\sqrt{2}$

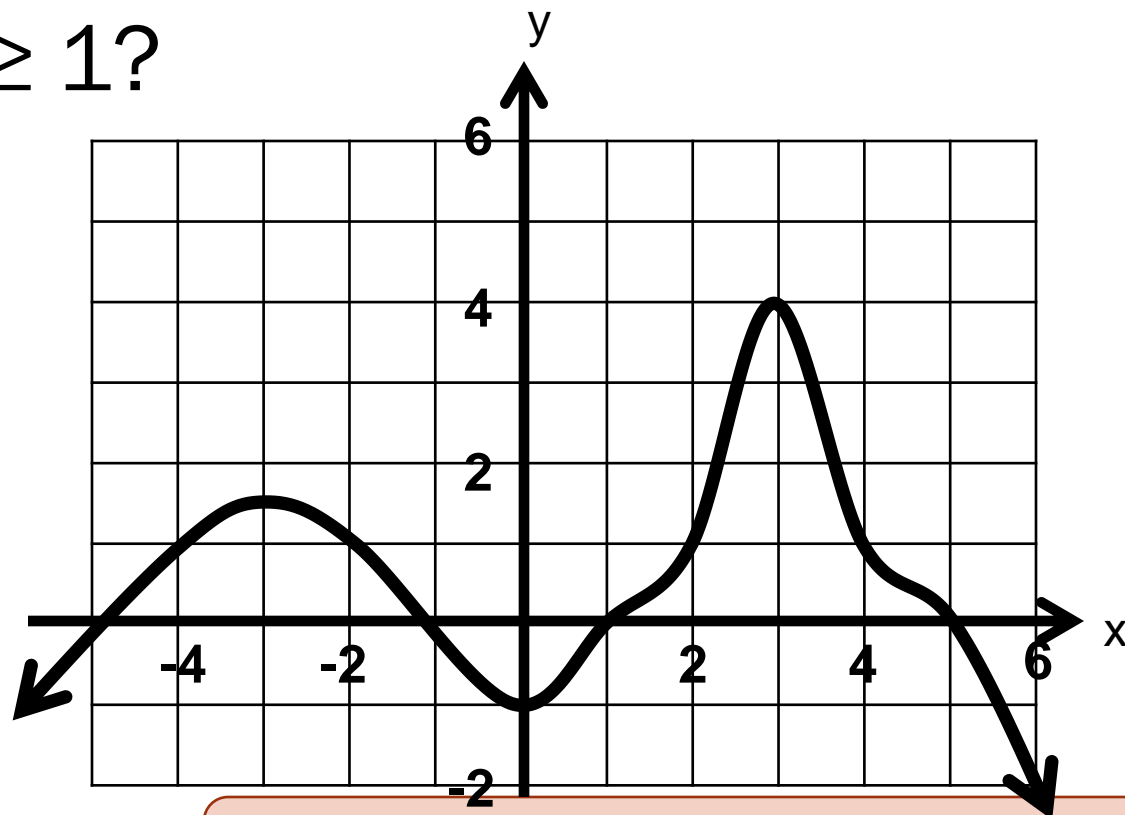
D) $4\sqrt{3}$

E) $6\sqrt{3}$



Difficulty Level 3

125) Given the graph of $y = f(x)$ below, which of the following sets represents all values of x for which $f(x) \geq 1$?



A) All real numbers

B) $x \geq 1$

C) $-5 \leq x \leq -1$; $1 \leq x \leq 5$

D) $-4 \leq x \leq -2$; $2 \leq x \leq 4$

E) $x \leq -4$; $x \geq 4$

Difficulty Level 5

$$X: \{2, 4, 6, 8, 10\}$$

$$Y: \{1, 3, 5, 7, 9\}$$

126) If a is a number chosen randomly from set X and b is a number chosen randomly from set Y , what is the probability that ab is greater than 20 but less than 50?

A) $\frac{1}{5}$

D) $\frac{3}{5}$

B) $\frac{6}{5}$

E) $\frac{18}{25}$

C) $\frac{7}{25}$

Difficulty Level 4

127) If $w^a \times w^5 = w^{15}$ and $(w^4)^b = w^{12}$, what is the value of $a + b$?

A) 6

B) 7

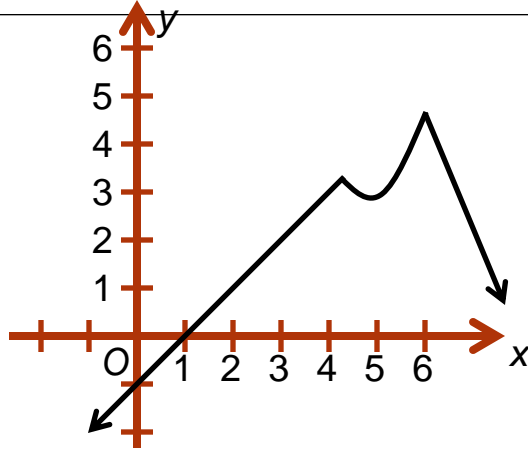
C) 11

D) 12

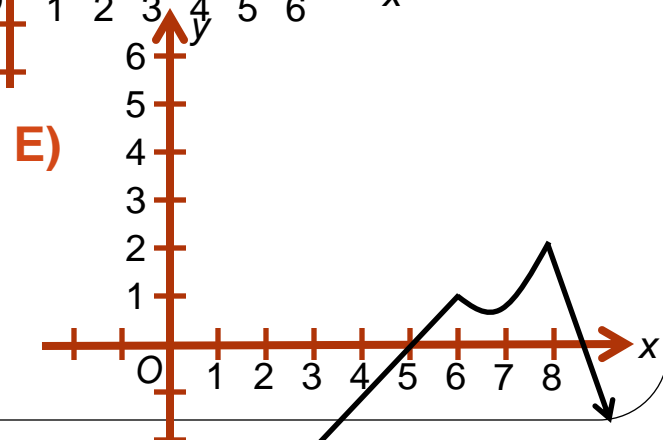
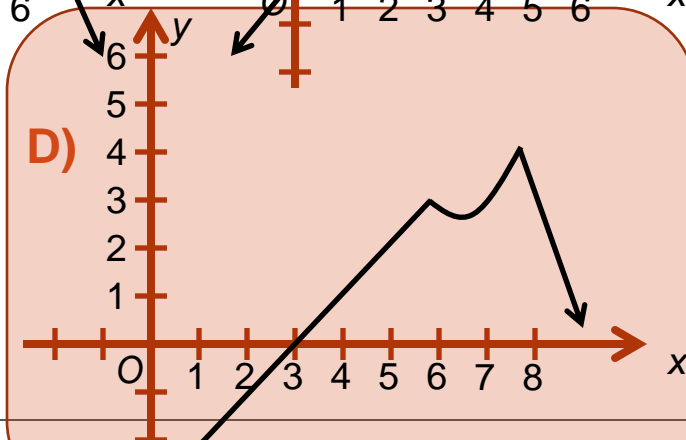
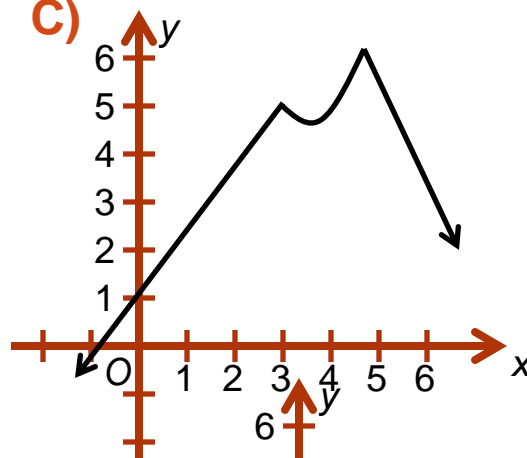
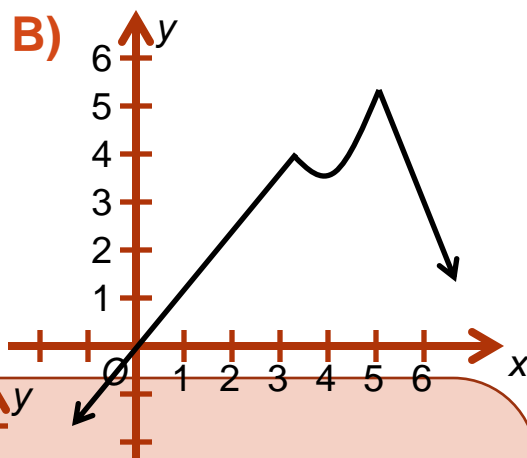
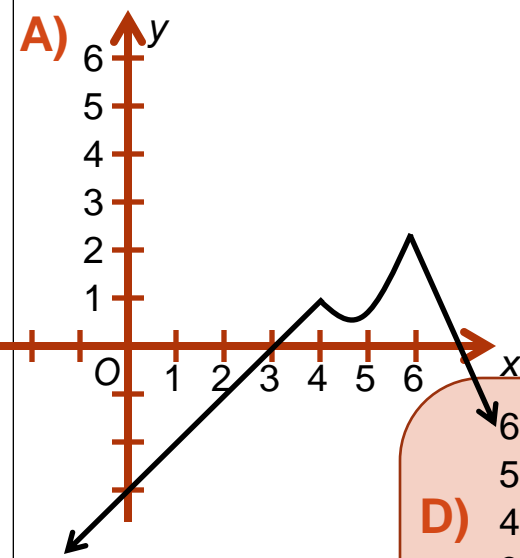
E) 13

Difficulty Level 4

Difficulty Level 5



128) Given the graph of $y = f(x)$ above, which of the following represents the graph of $y = f(x - 2)$?



Practice Test 3

Section 5– 18 questions

129) In the figure below,
what is the value of $2x$?

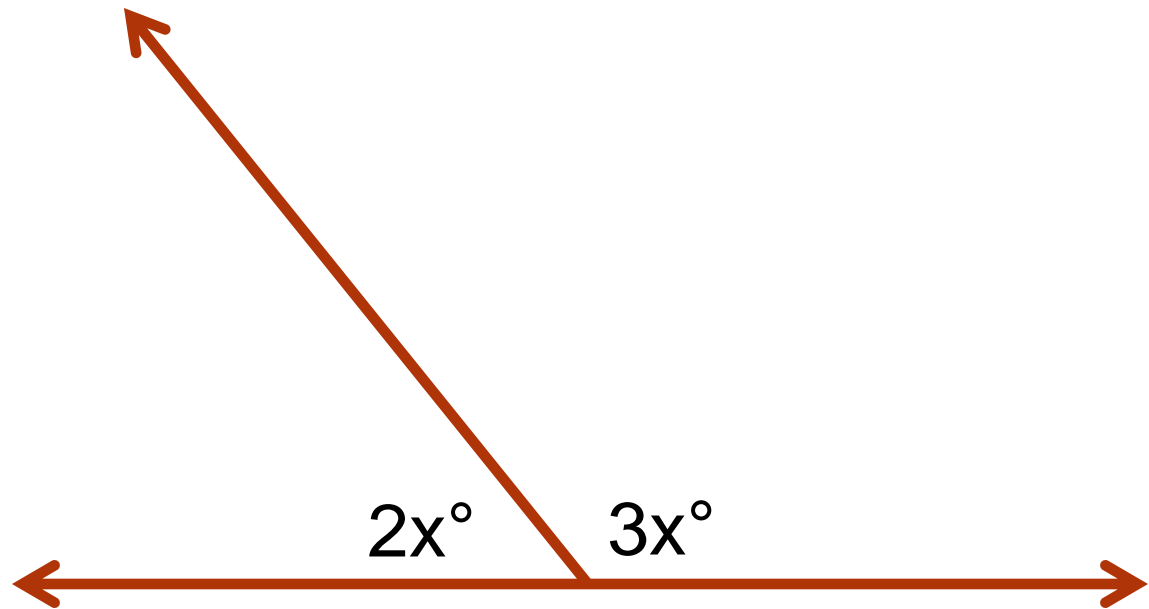
A) 36

B) 72

C) 90

D) 108

E) 132



Difficulty Level 1

130) If $(x - 4)^2 = 36$, then x could be

A) -6

B) -2

C) 0

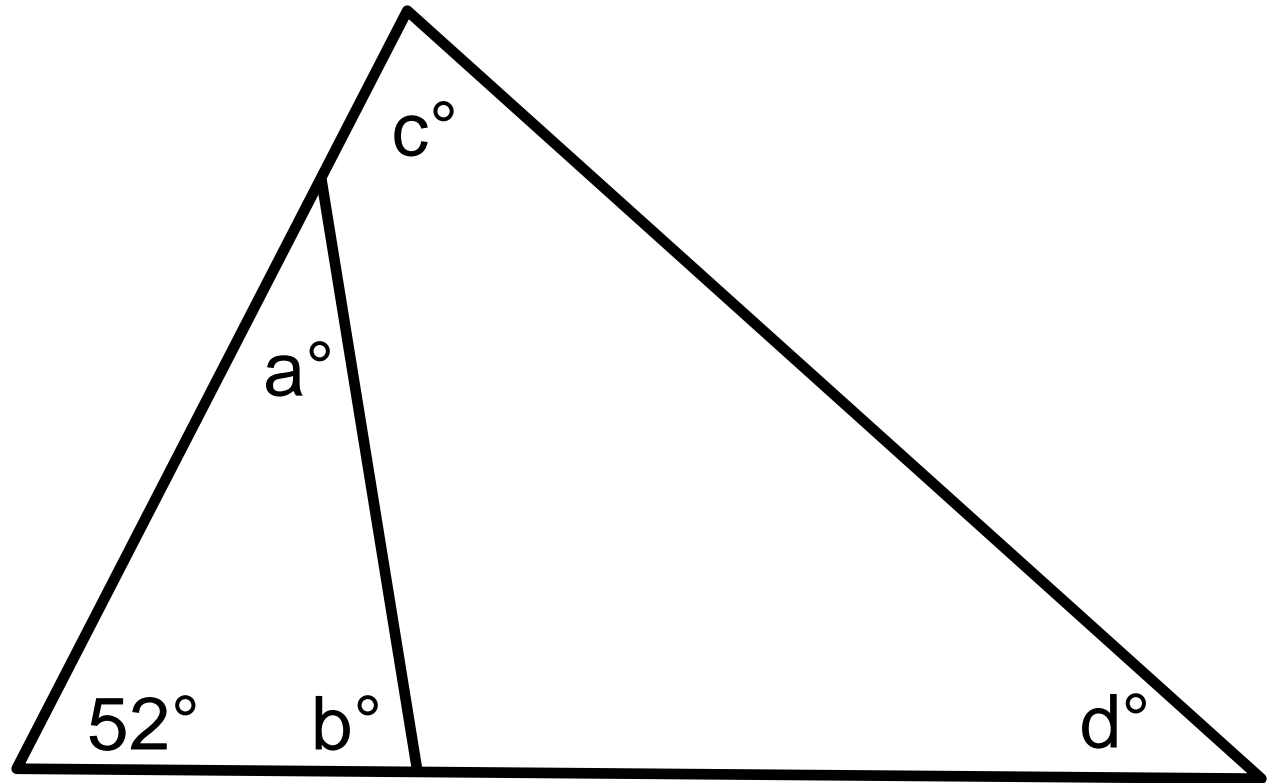
D) 4

E) 6

Difficulty Level 3

131) In the figure below, what is the value of $a + b + c + d$?

- A) 56
- B) 128
- C) 256
- D) 264
- E) 322



Difficulty Level 3

132) If $f(x) = x^2 - 4$, for what positive value of x does $f(x) = 32$?

A) 5

B) 6

C) 7

D) 8

E) 9

Difficulty Level 3

133) A can of mixed nuts contains cashews, almonds, peanuts, and walnuts in the ratio of 2 to 4 to 5 to 7, respectively, by weight. What fraction of the mixture by weight is almonds?

A) $\frac{1}{18}$

D) $\frac{1}{4}$

B) $\frac{1}{9}$

E) $\frac{5}{18}$

C) $\frac{2}{9}$

Difficulty Level 3

134) Twenty students in a chemistry class took a test on which the overall average score was 75. If the average score for 12 of those students was 83, what was the average score for the remaining members of the class?

A) 60

B) 61

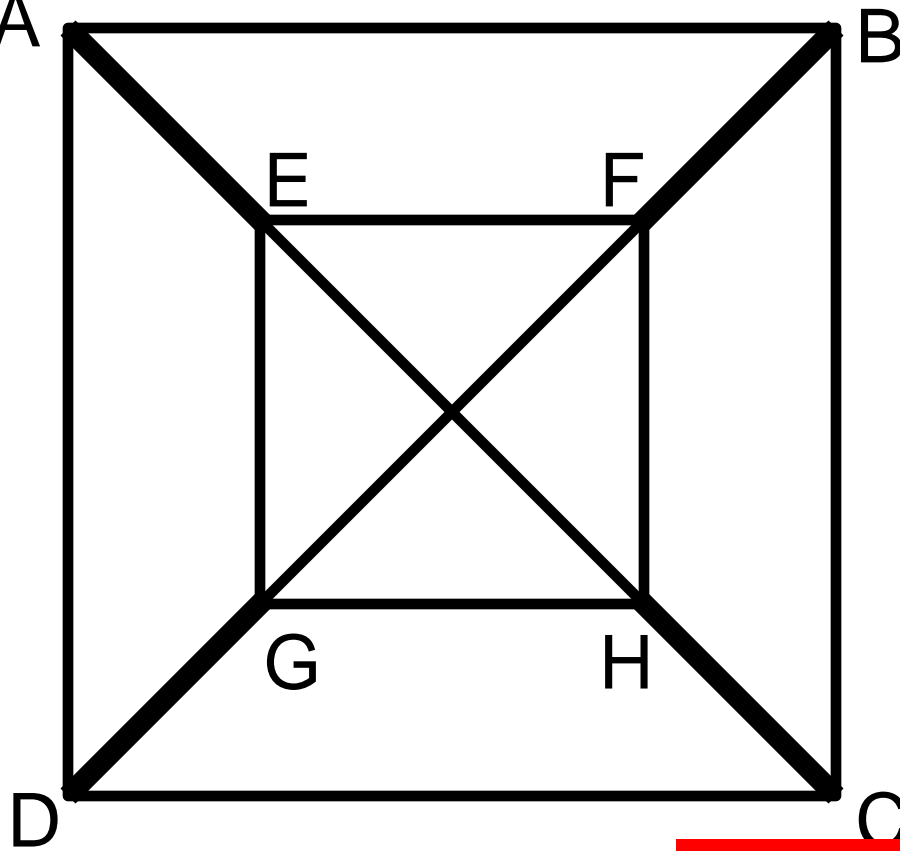
C) 62

D) 63

E) 64

Difficulty Level 4

135) In the figure below, the vertices of square $EFGH$ are on the diagonals of square $ABCD$. If $EF = 8\sqrt{2}$ and $AB = 14\sqrt{2}$, what is the sum of the lengths $AE + BF + CG + DH$ (heavier lines)?



A) 24

B) 28

C) 32

D) 36

E) 38

136) In the correctly worked addition problem below, each letter represents a different non-zero digit. What is the value of $2R + T$?

A) 4

B) 5

C) 10

D) 11

E) 13

$$\begin{array}{r} RS \\ + SR \\ \hline TR4 \end{array}$$

Difficulty Level 5

137) For all real numbers n , let \boxed{n} be defined by $\boxed{n} = \frac{n^2}{16}$. What is the value of $\boxed{4}^2$?

			1
--	--	--	---

Difficulty Level 2

138) The Civics Club earned 25% more at its bake sale in 2007 than it did in 2006. If it earned \$600 at its bake sale in 2006, how much did it earn at its bake sale in 2007?

	7	5	0
--	---	---	---

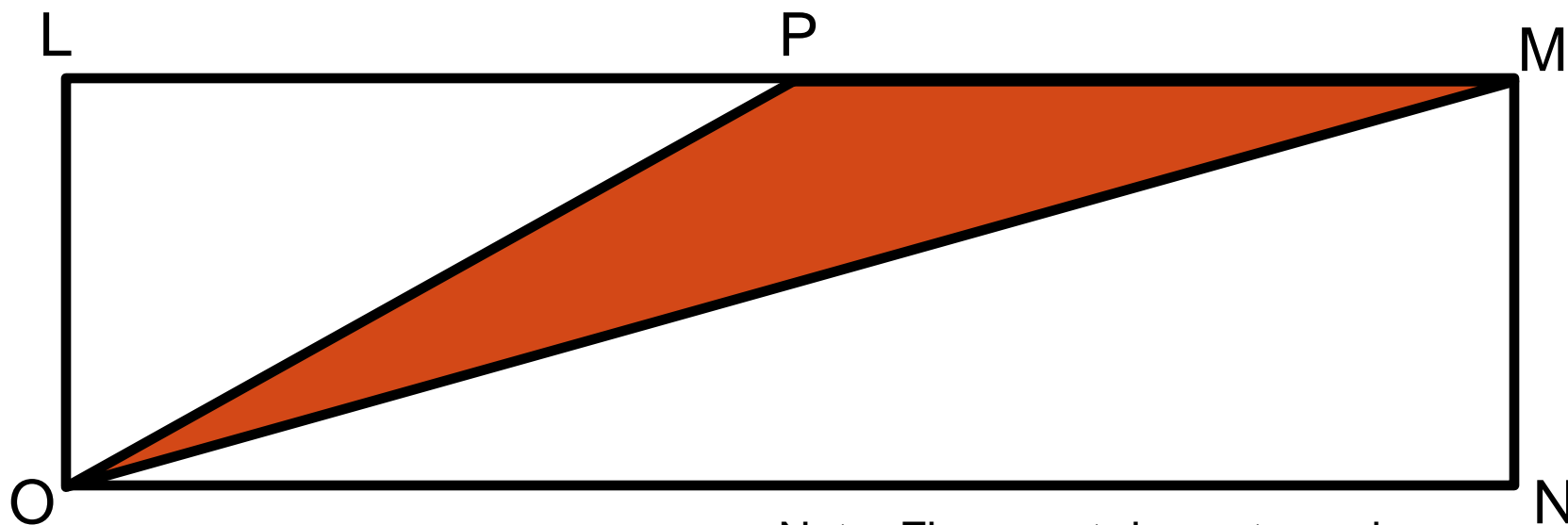
Difficulty Level 2

139) If the sum of two numbers is 4 and their difference is 2, what is their product?

			3
--	--	--	---

Difficulty Level 2

140) In the rectangle $LMNO$ below, P is the midpoint of side LM . If the perimeter of the rectangle is 48 and side LM is twice the length of side LO , what is the area of the shaded region?



Note: Figure not drawn to scale.

		3	2
--	--	---	---

Difficulty Level 3

141) If $64^3 = 4^x$, what is the value of x ?

			9
--	--	--	---

Difficulty Level 3

142) Points P , Q , R , and S lie on a line in that order. If \overline{PS} is twice as long as \overline{PR} and four times as long as \overline{PQ} , what is the value of $\frac{QS}{PQ}$?

			3
--	--	--	---

Difficulty Level 4

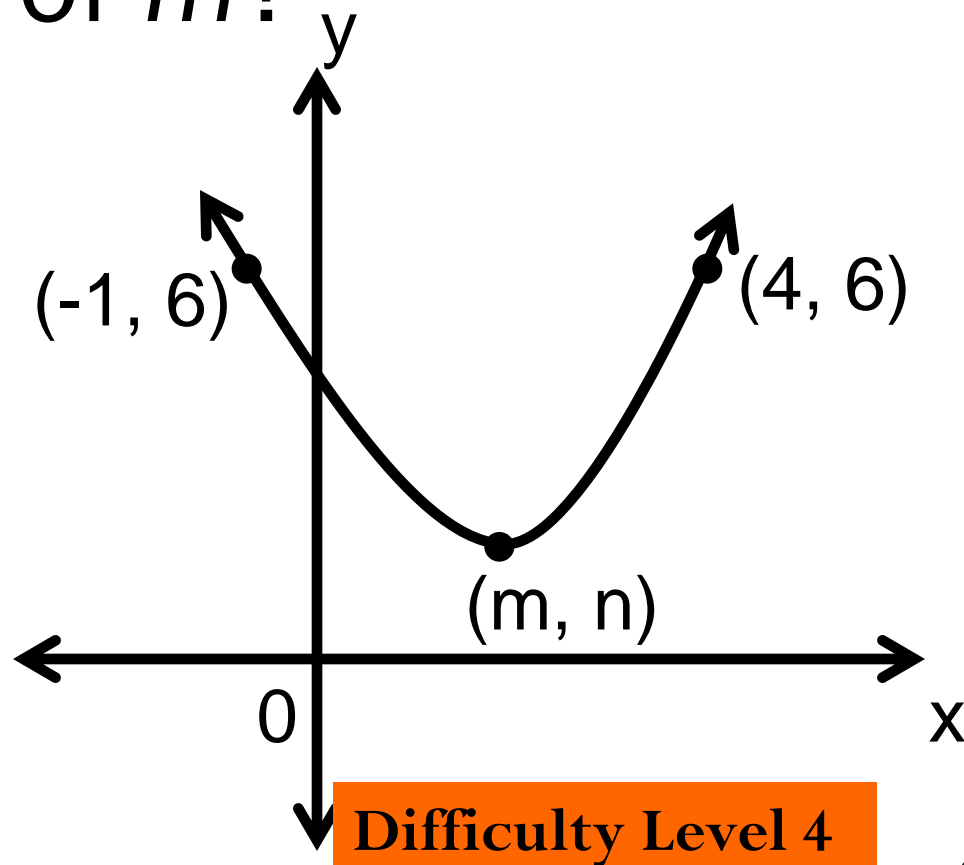
143) The figure below shows the graph in the xy -plane of a quadratic function with a vertex at (m, n) .

What is the value of m ?

	3	/	2
--	---	---	---

or

	1	.	5
--	---	---	---



Difficulty Level 4

144) If the sum of five consecutive even integers is 110, what is the least of these integers?

		1	8
--	--	---	---

Difficulty Level 4

145) According to the data in the table below, by what percent did the number of applicants to Collins College increase from 1990 to 1995? (Disregard the % symbol when entering your answer into the grid. For instance, grid 50% as 50.)

Difficulty Level 4

		2	0
--	--	---	---

NUMBER OF APPLICANTS TO COLLINS COLLEGE	
YEAR	APPLICANTS
1980	15,000
1985	18,000
1990	20,000
1995	24,000
2000	25,000

146) A jar contains only black, white, and red marbles. If randomly choosing a black marble is four times as likely as randomly choosing a white marble, and randomly choosing a red marble is five times as likely as randomly choosing a black marble, then what is the smallest possible number of marbles in the jar?

		2	5
--	--	---	---

Practice Test 3

Section 7 – 16 questions

147) If $4x + 5 = 20$, what is the value of $4x + 8$?

A) 3

B) 7

C) 16

D) 23

E) 30

Difficulty Level 2

148) If one serving of cereal is $\frac{1}{3}$ cup, how many servings are in 3 pints of cereal? (1 pint = 2 cups)

A) 3

B) 9

C) 18

D) 27

E) 36

Difficulty Level 2

149) If the radius of the circle with center O below is 4, what is the length of arc RST ?

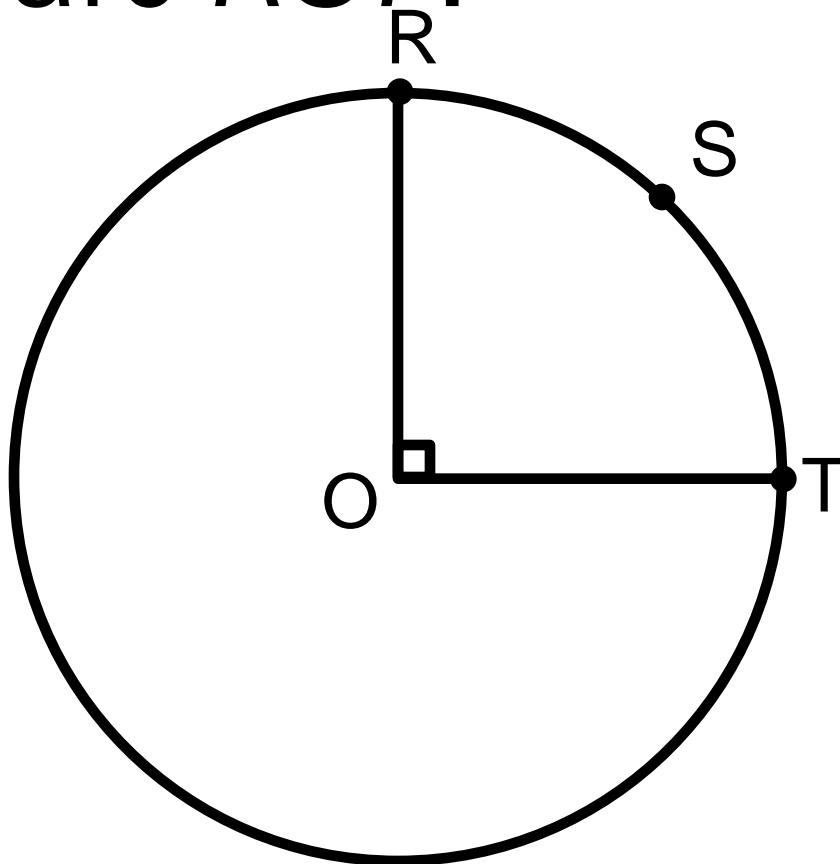
A) 2π

B) 4π

C) 8π

D) 12π

E) 16π



Difficulty Level 2

150) In the triangle below, what is the value of x ?

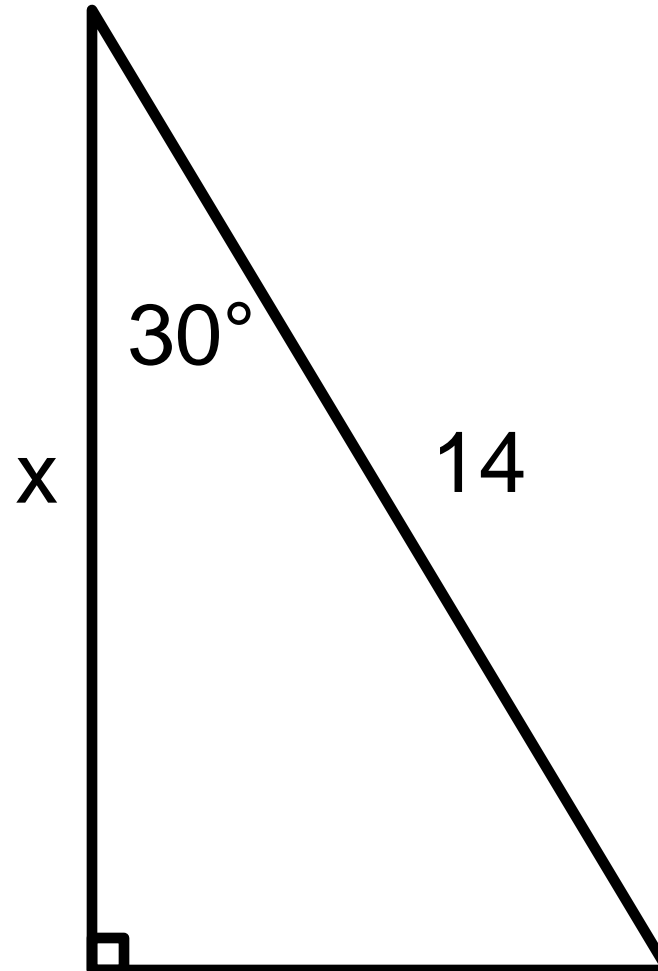
A) 7

B) $7\sqrt{2}$

C) $7\sqrt{3}$

D) $14\sqrt{3}$

E) $28\sqrt{3}$



Note: Figure not drawn to scale **Difficulty Level 3**

151) For $x > 0$, let ∇x be defined by the equation $\nabla x = 3x - 3$. Which of the following is equivalent to $\frac{\nabla 7}{\nabla 3}$?

A) $\nabla 2$

B) $\nabla 3$

C) $\nabla 6$

D) $\nabla 8$

E) $\nabla 9$

Difficulty Level 3

152) Heather can clean a pool in 1 hour, and Anna can clean the same pool in 1.5 hours. If the rate at which they work together is the sum of their rates working separately, how many minutes should they need to clean the pool if they work together? (1 hour = 60 minutes)

A) 24 minutes

D) 72 minutes

B) 36 minutes

E) 100 minutes

C) 60 minutes

Difficulty Level 3

153) Which of the following has the greatest value?

A) $(100^3)^4$

B) $(100^5)(100^6)$

C) $(10,000)^4$

D) $(100^2 \times 100^2)^2$

E) $(1,000,000)^3$

Difficulty Level 3

154) Line m (not shown) is the reflection of line l over the x -axis. What is the slope of line m ?

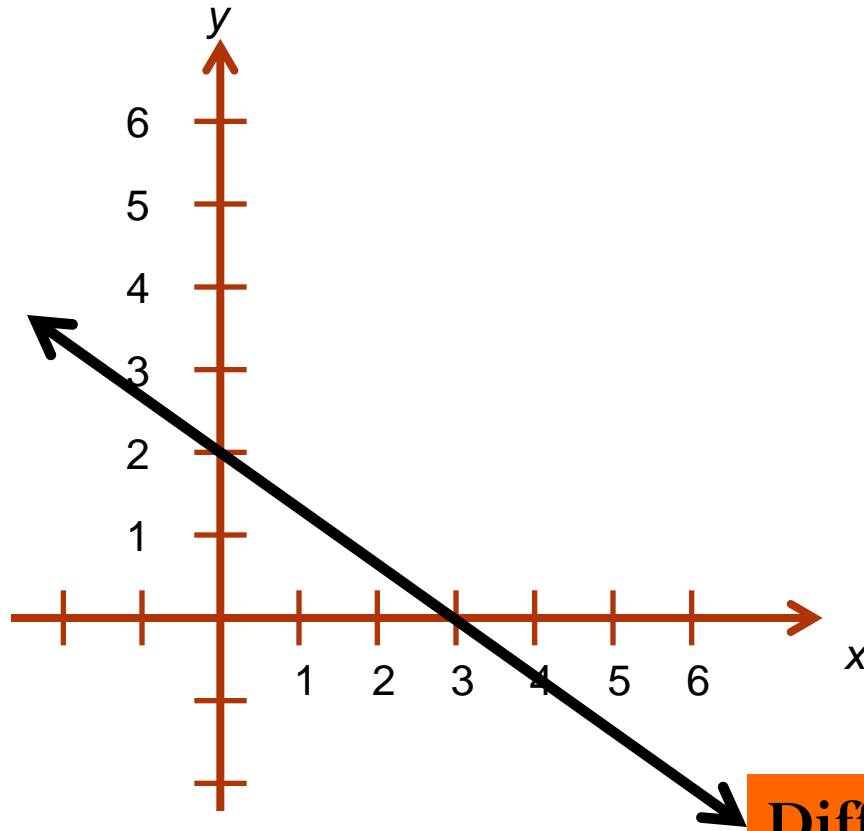
A) $3/2$

B) $2/3$

C) 0

D) $-2/3$

E) $-3/2$



Difficulty Level 4

155) If $a^2 + b^2 = 4$ and $ab = 5$,
what is the value of $(a + b)^2$?

A) 10

B) 12

C) 14

D) 16

E) 18

Difficulty Level 4

156) The figure below shows the dimensions, in feet, of a stone slab. How many of these slabs are required to construct a rectangular patio 24 feet long and 12 feet wide?

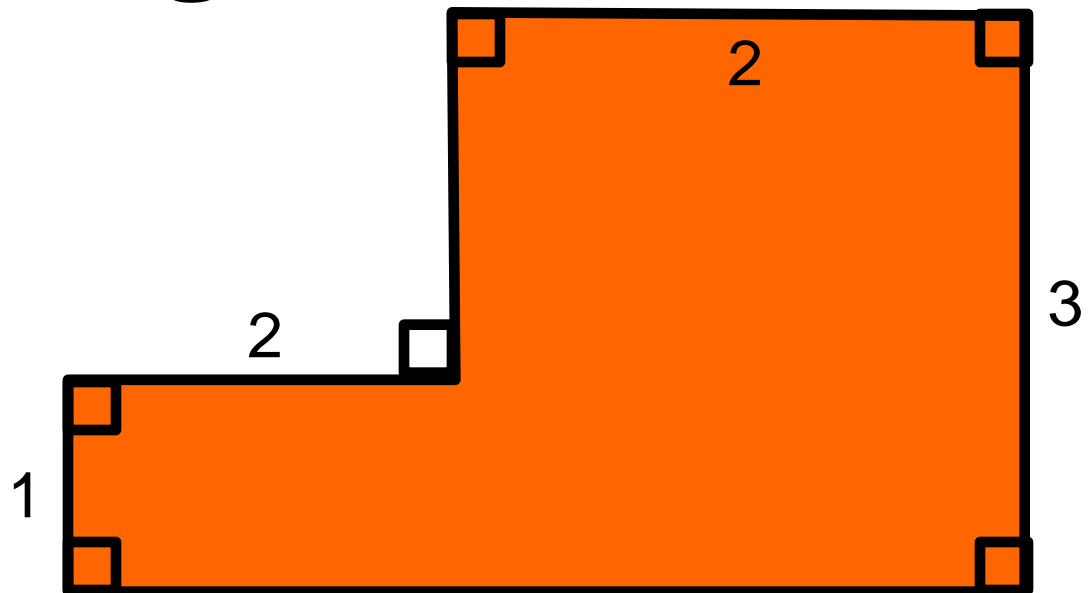
A) 18

B) 20

C) 24

D) 36

E) 48



Difficulty Level 3

157) \$12,000 in winnings for a golf tournament were distributed in the ratio of 7:2:1 to the first-, second-, and third-place finishers, respectively. How much money did the first-place finisher receive?

A) \$1,200

B) \$1,700

C) \$2,400

D) \$8,400

E) \$10,000

Difficulty Level 3

158) If $2x + 3y = 7$ and $4x - 5y = 12$, what is the value of $6x - 2y$?

A) 5

B) 8

C) 15

D) 17

E) 19

Difficulty Level 4

159) If r and s are positive integers and $s + 1 = 2r$, which of the following must be true?

A) I only

B) III only

C) I and II only

D) I and III only

E) I, II, and III

I. s is odd

II. r is even

III. $\frac{s}{r} + \frac{1}{r}$ is an integer

Difficulty Level 4

160) A bag contains six chips, numbered 1 through 6. If two chips are chosen at random without replacement and the values on those two chips are multiplied, what is the probability that this product will be greater than 20?

A) $\frac{1}{30}$

B) $\frac{1}{15}$

C) $\frac{2}{15}$

D) $\frac{1}{5}$

E) $\frac{13}{15}$

Difficulty Level 4

2, -4, -8, ...

161) In the sequence above, each term after the second is equal to the product of the two preceding terms. For example, the third term, -8, is the product of 2 and -4. How many of the first 100 terms of this sequence are negative?

A) 33

D) 66

B) 34

E) 67

C) 50

Difficulty Level 5

162) In the figure below, points C and D are mid-points of edges of a cube. A triangle is to be drawn with R and S as two of the vertices. Which of the following points should be the third vertex of the triangle if it is to have the largest possible perimeter?

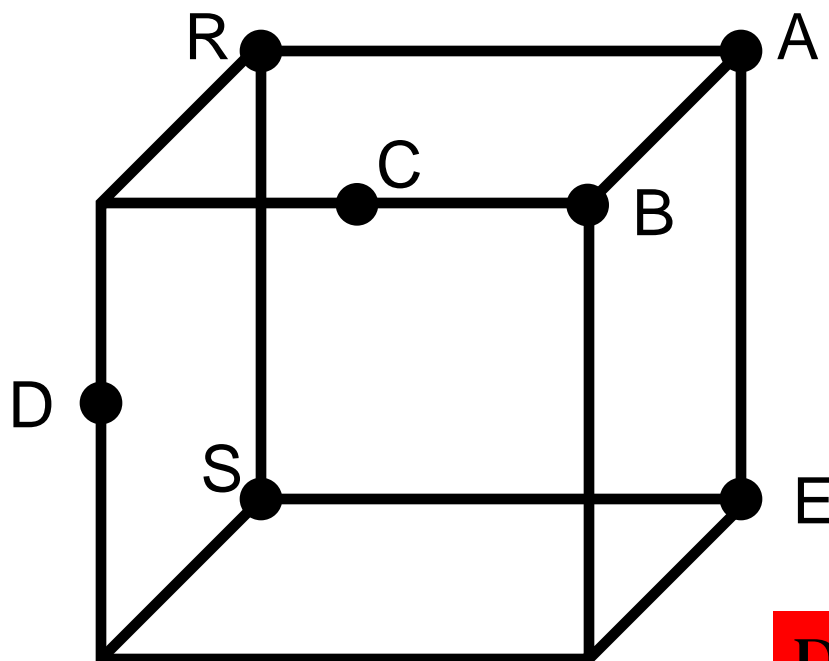
A) A

B) B

C) C

D) D

E) E



Difficulty Level 5

Smart Cards

163) A right triangle has a leg of length 3 and a hypotenuse of length 4. What is the length of the other side?

$$\sqrt{7}$$

164) If n is a positive real number, what is the simplest way to express $n^2 \times n^3$?

$$n^5$$

165) The average of 3 consecutive even integers is 80. What is the least of these integers?

78

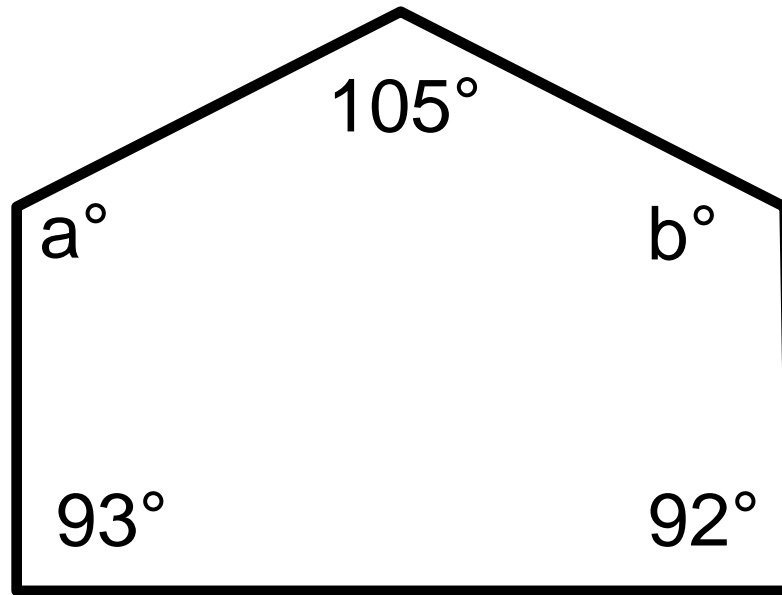
166) Stephanie bought a sweater for \$42.40, including a 6% sales tax. What was the price before tax?

\$40.00

167) If $5 - 2(x - 3) = 9$,
then what is the value
of x ?

1

168) In the figure below,
what is the value of $a + b$?



Note: Figure not drawn to scale.

250

169) At the beginning of 1999, stock in ABC company cost \$100 per share. It increased by 25% in 1999, decreased by 20% in 2000, decreased by 20% in 2001, and increased by 15% in 2002. What was the price at the end of 2002?

92

170) Shaquille O'Neal made 4 of his first 12 free throws. How many consecutive shots x must he hit for his free-throw percentage to reach 60%?

8

171) If the average of x , $x + 2$, and $2x + 8$ is 6, what is the value of x ?

2

172) If a triangle has two sides of length 8 and 12, then what is the largest possible integer length of the third side?

19

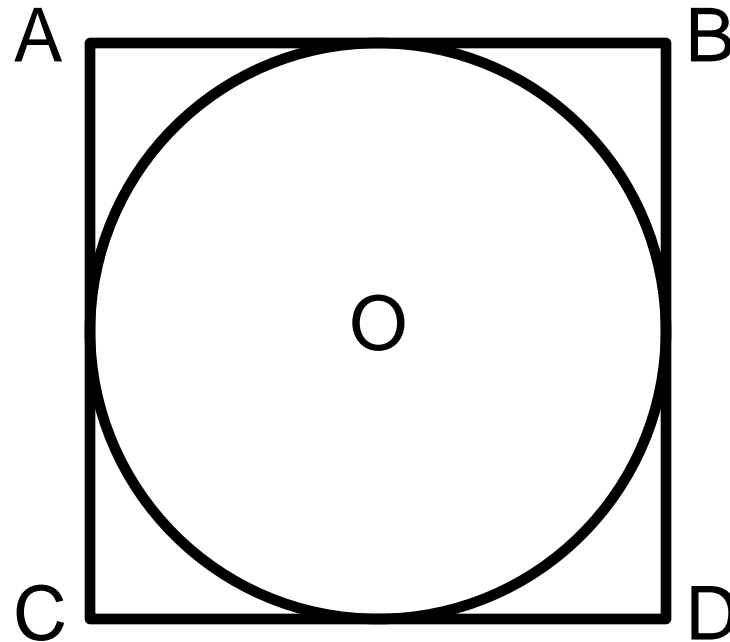
173) A set consists of the integers from -12 to n . If the sum of the members of that set is 42 , how many integers are in the set?

28

174) If 10 students in a class of 16 have an average score of 82 on a physics test and the remaining students have an average score of 90, what is the average score of the entire class?

85

175) If the area of square ABCD in the figure below is 100 ft^2 , then what is the circumference of inscribed circle O?



10π

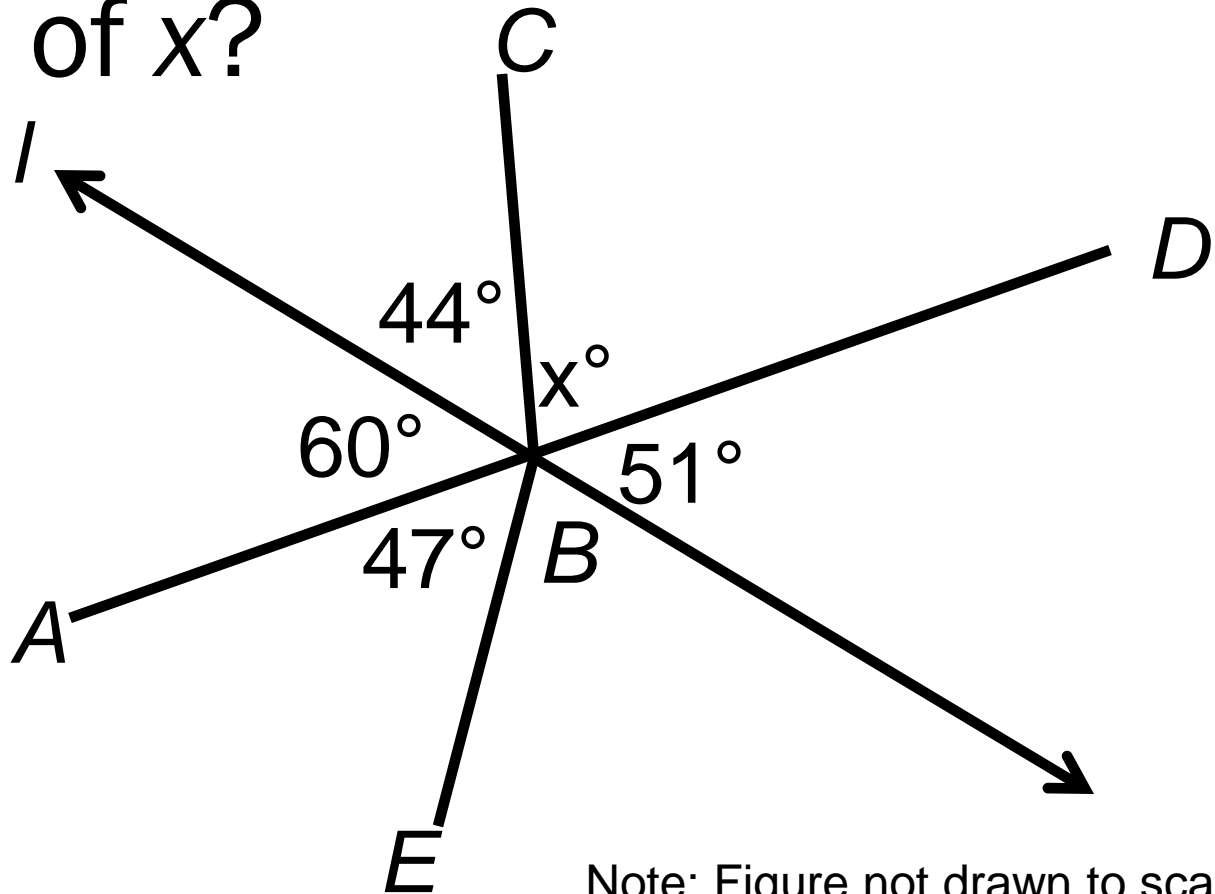
176) If the third Friday in January occurs on the 15th, what is the date of the fourth Wednesday in January?

27th

177) In 1984, a share of stock in Black's Oil Trust cost \$3. By 2000, it had increased to \$15 per share. What is the percent increase in the price of the stock from 1984 to 2000?

400%

178) In the figure below, line segments AB, EB, CB, and DB intersect line l at point B. What is the value of x ?



85°

Note: Figure not drawn to scale.

179) If $(x + 4)(x - 4) = 65$,
then what is the value of
 x^2 ?

81

180) At a department store, all shirts are priced at s dollars, but if you buy one shirt at full price, you can buy any number of additional shirts at a \$2 discount per shirt. What is the cost of buying x shirts at this sale?

$$s + (x - 1)(s - 2)$$