MATHS

BOOKS - PRINCETON MATHS (ENGLISH)

PRACTICE SECTION 2

Mcqs

1. Which of the following expressions is equivalent to 2a+4b+6c ?

A. 8(a+b+c)

B. 2(a+2b)+3c)

C. 2(a+4b+6c)

D. 2(a+2b+3c)

Answer: D

 Watch Video Solution

2. When written is symbols, " The square of the product of a and b" is represented as :

A. ab

B. ab^2

C. $(ab)^2$

D. a^2b

Answer: C

Watch Video Solution

3. Every week , Donald records the amount the mileage that has accumulated on his truck. On Monday , Donald recorded that he had driven

16,450 kilometers. After a week of deliveries , his new recording was 18,130 kilometers . He drove for thirty hours during that week . What was his average driving speed during that week to the nearest kilometer per hour ?

A. 38

B. 41

C. 48

D. 56

Answer: D

Watch Video Solution

4. The dimensions of a block of cheese are 12 inches by 3 inches by 3 inches. What is the volume , in cubic inches , of the block of cheese ?

A. 18

B. 36

C. 45

D. 108

Answer: D

Watch Video Solution

5. If x is a real number and $3^x = 81$, then 3×2^x ?

A. 3

B. 16

C. 24

D. 48

Answer: D

Watch Video Solution

6. For the songs on Charlie's mp3 player , the ratio of folk songs of rock songs is 3:11. Which of the following statements about the songs on his MP3 player is (are) true ?

I.There are fewer fork songs than rock songs.

II. For every 11 rock songs, there are 3 fork songs.

III. Fork songs comprise $\frac{3}{11}$ of the songs on Charlie's MP3 player .

A. I only

B. II only

C. I and II only

D. II and III only

Answer: C

Watch Video Solution

7. Malt needs $5\frac{1}{9}$ gallons of hydrochloric acid for an experiment . He has $3\frac{1}{3}$ gallons already . How many more gallons of hydrochloric acid does Matt need ?

A. $2\frac{7}{9}$

B. $2\frac{2}{3}$

C. $2\frac{1}{8}$

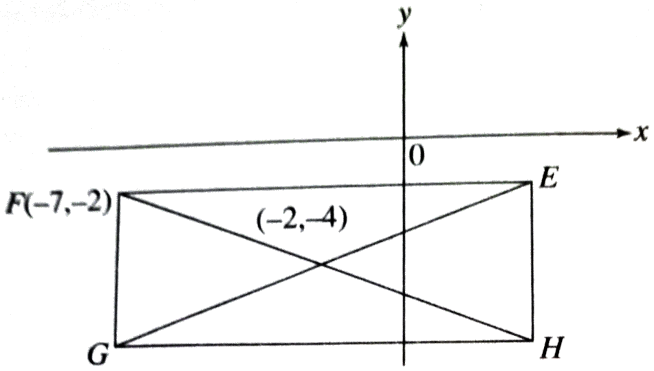
D. $1\frac{7}{9}$

Answer: D

Watch Video Solution

Watch Video Solution

8. As shown below, the diagonals of rectange EFGH intersect at the point (-2,-4) in the standard (x,y) coordinate plane. Point F is at (-7,-2) . Which of the following are the coordinates of H ?



A. $\left(-4\frac{1}{2}, -3 \right)$

B. (-7, -6)

C. (3,-2)

D. (3,-6)

Answer: D

Watch Video Solution

9. Which of the following expressions is equivalent to $\frac{9x+45}{9}$?

A. 9x+5

B. x+45

C. x+5

D. 6x

Answer: C

Watch Video Solution

10. The expressions 23fg-6f(5f+3g) is equivalent to :

A. $5fg - 30f^2$

B. 25fg

C. 3g-7fg

D. $41fg - 30f^2$

Answer: A

View Text Solution

11. A farmer sells strawberries at a market in both pint-sized containers and quart-sized containers. The farmer charges $5 for each pint, $5 for each quart, is always paid on the

day of purchase, and sells no other goods. On a recent day , the farmer sold as many pint containers as quart containers and received $120 in sales. How many pints of strawberries did the farmer sell ?

A. 12

B. 15

C. 24

D. 40

Answer: B

View Text Solution

12. A rectangular piece of cloth has a length of 6 feet and a width of 1.5 feet . Brad estimates that the area is 12 square feet. His estimate is approximately what percent greater than the actual area ?

A. 0.75

B. 0.66

C. 0.33

D. 0.25

Answer: C

 Watch Video Solution

13. The geometric mean of 3 positive numbers is the cube root of the product of the 3 numbers. What is the geometric mean of 2,4 and 27 ?

A. 6

B. 11

C. 21

D. 72

Answer: A

View Text Solution

14. A model for the number of questions on an assignment when the assignment is worth p points, is $q = \frac{p^2}{50}$. According to this model , what is the number of questions, q for an assignment worth 80 points ?

A. 128

B. 80

C. 26

D. 13

Answer: A

View Text Solution

15. The expressions $x^2 + 2x - 15$ can be written as the product of 2 binomials with integer coefficients . One of the binomials is

(x+5) . What of the following is the other binomial ?

A. $\left(x^2-3\right)$

B. $\left(x^2+3\right)$

C. (x-3)

D. (x+3)

Answer: C

View Text Solution

16. The production cos of x computers for a company over one year is $175x+$150,000 . To minimize production costs in a given year to $465,000 , how many computers can the company make in that year ?

A. 857

B. 1725

C. 1800

D. 2657

Answer: C

View Text Solution

17. Given $g(x) = \dfrac{x^2 + \frac{7}{9}}{x^3 + \frac{11}{27}}$, what is $g\left(\dfrac{1}{3}\right)$?

A. $\dfrac{216}{243}$

B. $\dfrac{21}{11}$

C. $\dfrac{96}{27}$

D. 2

Answer: D

View Text Solution

18. Hannah is 5 years younger than Nora , who is x years old, Which of the following is an expression for Hannah's age in 2 years ?

A. x-3

B. x+3

C. x+7

D. 2x-3

Answer: A

View Text Solution

19. A rectangle is 5 times as wide as it is long. The area of the rectangle is 320 square feet. What is the perimeter of the rectangle , in feet ?

A. 8

B. 40

C. 48

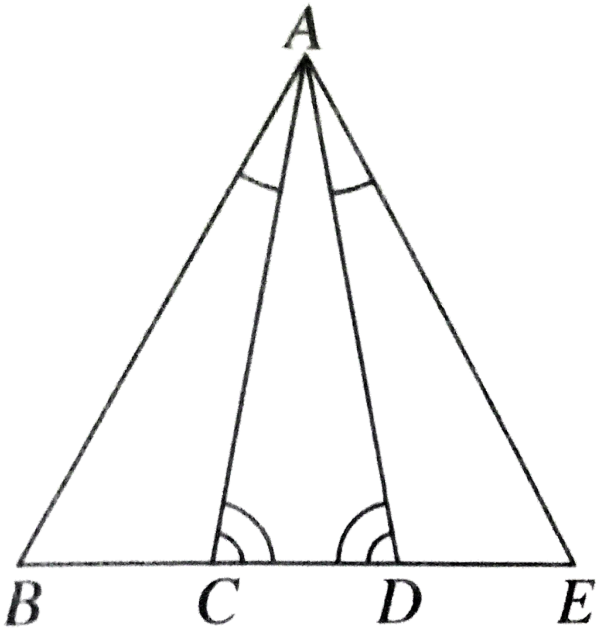
D. 96

Answer: D

View Text Solution

20. In the figure below , C and D are both on $\overline{BE}$, the measure of $\angle BAC$ is equal to the measure of $\angle DAE$ and the measure of $\angle ACD$ is equal to the measure of $\angle ADC$. Which of the following statements must be

true ?



A. $\triangle ABC$ is similar to $\triangle AED$

B. The areas of triangles $\triangle ACD$ and $\triangle ADE$ are equal

C. $\overline{AB} \cong \overline{AD}$

D. $\angle CAD \cong \angle AED$

Answer: A

View Text Solution

21. Which of the following is equivalent to $8^{\frac{1}{4}}$?

A. -1×8^5

B. $\sqrt[4]{8}$

C. $\sqrt{2}$

D. $\frac{1}{8^4}$

Answer: B

Watch Video Solution

22. Admission to the martial arts tournament is $30, but participants must purchase separate tickets for each event they with to participate in once inside . Each event is the same price as any other event . The graph below shows the total cost for a person, for admission and events , as a function of the number of events paid for . One of the

following is the price of a single event. Which one is it ?

0	$30
1	$42
2	$54
3	$66
4	$78
5	$90

A. $11

B. $12

C. $13

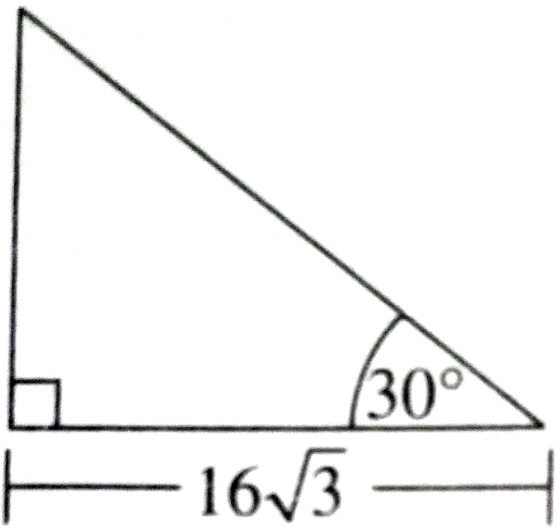
D. $14

Answer: B

View Text Solution

23. A right triangle , shown below , has a longer leg measing $16\sqrt{3}$ centimeters . How long is the hypotenuse of the triangle , in

centimeters ?



A. 8

B. $8\sqrt{2}$

C. 16

D. 32

Answer: D

View Text Solution

24. If you add up 5 consecutive odd integers that are each greater than 15, what is the smallest possible sum ?

A. 75

B. 90

C. 95

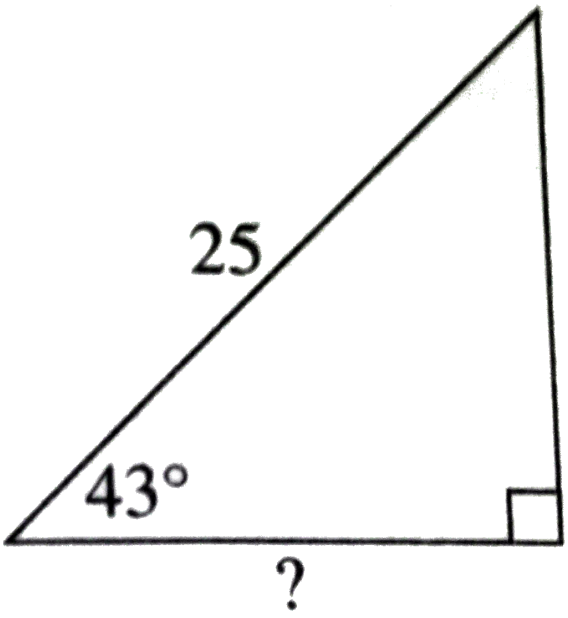
D. 105

Answer: D

View Text Solution

25. A department store escalator is 25 feet long and forms an angle of 43° with the floor , with is horizontal . What of the follow is an expression for the horizontal distance of the

escalator from beginning to end ?



A. $25\sin 43^\circ$

B. $25\cos 43^\circ$

C. $25\tan 43^\circ$

D. $25\csc 43^\circ$

Answer: B

View Text Solution

26. If $x - 15 = |-5|$, then x = ?

A. -20

B. -10

C. $\frac{2}{3}$

D. 20

Answer: D

View Text Solution

27. A grocery store is running a sale on seasonal berries. During the sale , the store sells packages of blueberries for $4 each and packages of strawberries for $6 each. Kate purchased nine packages of fruit for her mother's dinner party for $40. How many packages of blueberries did she purchase ?

A. 2

B. 4

C. 6

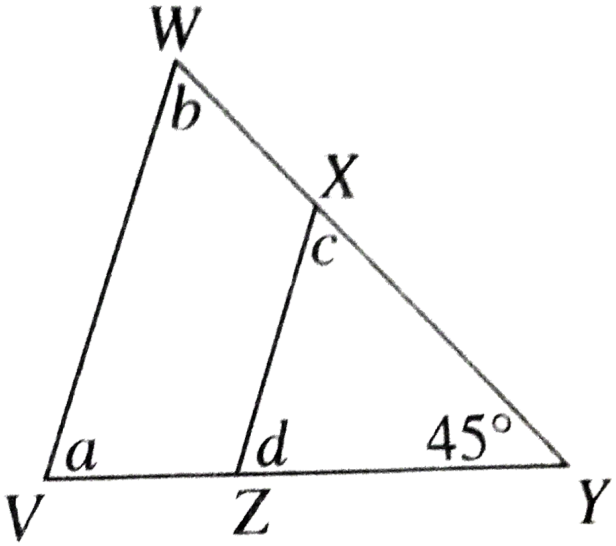
D. 7

Answer: D

Watch Video Solution

28. In $\triangle VWY$ below X lies on $\overline{WY}$, Z lies on $\overline{VY}$, and a,b,c and d are angle measures, in degrees. The measure of $\angle Y$ is 45°. What is

a+b+c+d ?



A. 315

B. 270

C. 225

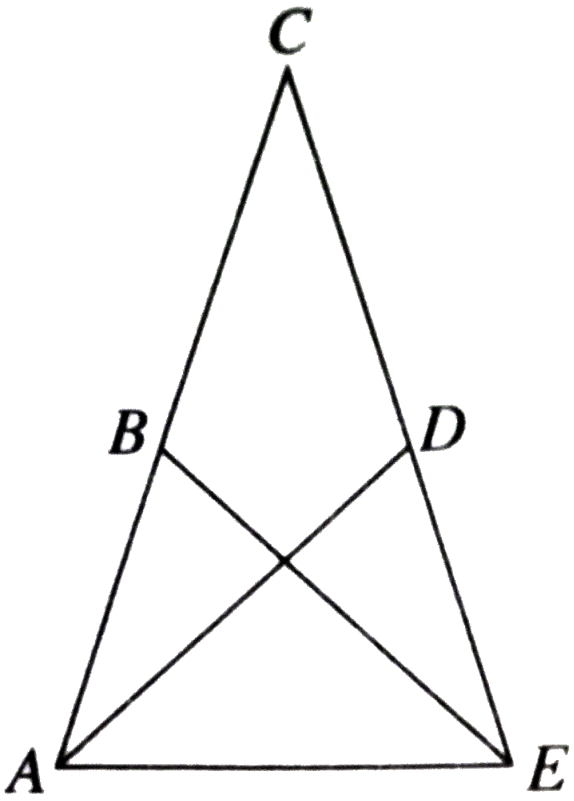
D. 135

Answer: B

View Text Solution

29. Triangle $\triangle ACE$, shown in the figure below, is isosceles with base $\overline{AE}$. B lies on $\overline{AC}$ and D lies on $\overline{CE}$. Segments $\overline{BE}$ and $\overline{AD}$ bisect $\angle AEC$ and $\angle CAE$, respectively. Which one of the following angle congruences is

necessarily true ?



A. $\angle CAE \cong \angle BEC$

B. $\angle CAD \cong \angle AEC$

C. $\angle CAE \cong \angle ACE$

D. $\angle BEC \cong \angle DAE$

Answer: D

View Text Solution

30. A trapezoid has parallel bases that measure 3 inches and 9 inches and a height that measures 6 inches . What is the area, in square inches , of the trapezoid ?

A. 18

B. 24

C. 30

D. 36

Answer: D

Watch Video Solution

31. The table below lists the number (to the nearest 1,000) of book club members in the United States for 2001 through 2004. of the following expressions with x representing the

number of years after 2001, which best models the number of book club members (in thousands) in the United States ?

Year	Number of members (in thousands)
2001	539
2002	542
2003	544
2004	547

A. 539x+2,001

B. $\frac{3}{8}x + 2,001$

C. $\frac{8}{3}x + 539$

D. 547x+2,001

Answer: C

View Text Solution

32. The table below shows the percents of U.S. citizens who had ever consumed Bob's soda , out of all soda consumers , for each year form 1986 through 2006.

Year	Percent	Year	Percent	Year	Percent
1986	24.2	1993	53.2	2000	60.3
1987	26.3	1994	55.1	2001	61.5
1988	29.2	1995	56	2002	63.4
1989	32.4	1996	57	2003	65.9
1990	38.2	1997	57.8	2004	74.2
1991	45.3	1998	58.2	2005	78.7
1992	49.4	1999	59.1	2006	83.5

Which of the following years had the LEAST increase in the percent of U.S. citizens who had consumed Bob's soda from the previous year ?

A. 1990

B. 1998

C. 2001

D. 2004

Answer: B

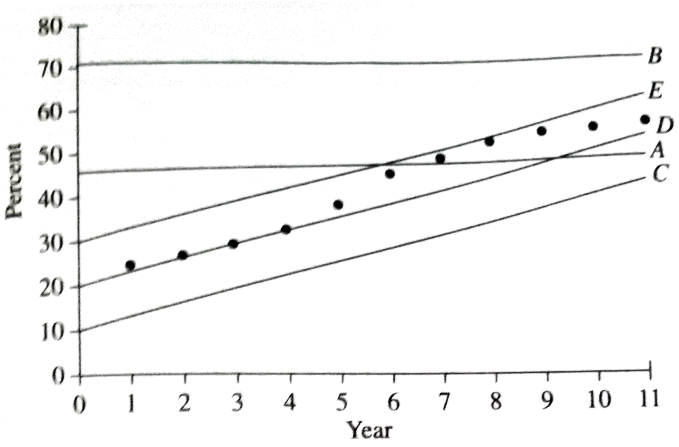
View Text Solution

33. The table below shows the percents of U.S. citizens who had ever consumed Bob's soda , out of all soda consumers , for each year form 1986 through 2006.

Year	Percent	Year	Percent	Year	Percent
1986	24.2	1993	53.2	2000	60.3
1987	26.3	1994	55.1	2001	61.5
1988	29.2	1995	56	2002	63.4
1989	32.4	1996	57	2003	65.9
1990	38.2	1997	57.8	2004	74.2
1991	45.3	1998	58.2	2005	78.7
1992	49.4	1999	59.1	2006	83.5

The figure below shows a scatterplot of the data in the table and solid lines that are possible modals for the data. Which of the 5 lines appears to be the best representation of

the data ?



A. A

B. B

C. C

D. D

Answer: D

View Text Solution

34. The table below shows the percents of U.S. citizens who had ever consumed Bob's soda , out of all soda consumers , for each year form 1986 through 2006.

Year	Percent	Year	Percent	Year	Percent
1986	24.2	1993	53.2	2000	60.3
1987	26.3	1994	55.1	2001	61.5
1988	29.2	1995	56	2002	63.4
1989	32.4	1996	57	2003	65.9
1990	38.2	1997	57.8	2004	74.2
1991	45.3	1998	58.2	2005	78.7
1992	49.4	1999	59.1	2006	83.5

By 2002 there were 74,672,120 U.S. citizens who had consumed Bob's soda. According to this

information , approximately how many people were soda consumers , of Bob's soda or other sodas, in 2002 ?

A. 4700000000

B. 150000000

C. 119000000

D. 47000000

Answer: C

View Text Solution

35. For all nonzero y and z ,

$$\frac{(y \times 10^5)(z \times 0.0001)}{(y \times 100,000)(z \times 10^{-4})} = ?$$

A. 10^9

B. 10

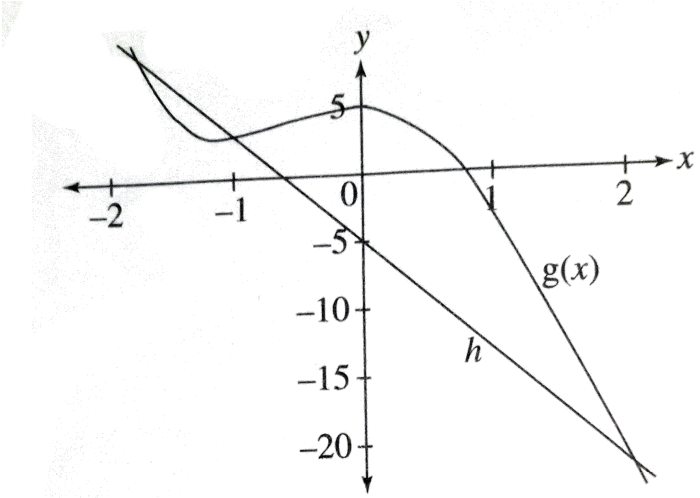
C. 1

D. $\frac{y}{z}$

Answer: C

Watch Video Solution

36. The function $g(x) = x^4 - 2x^3 - 6x^2 - x + 5$ and line h are shows in the standard (x,y) coordinate plane below . Which of the following is an equation of line h , which passes through (-1,3) and (2,-21) ?



A. $-8x - 5$

B. $-8x+5$

C. $-9x+5$

D. $-9x-5$

Answer: A

Watch Video Solution

37. Which of the following degree measures is equivalent to 2.25π radians ?

A. 101.25°

B. 202.5°

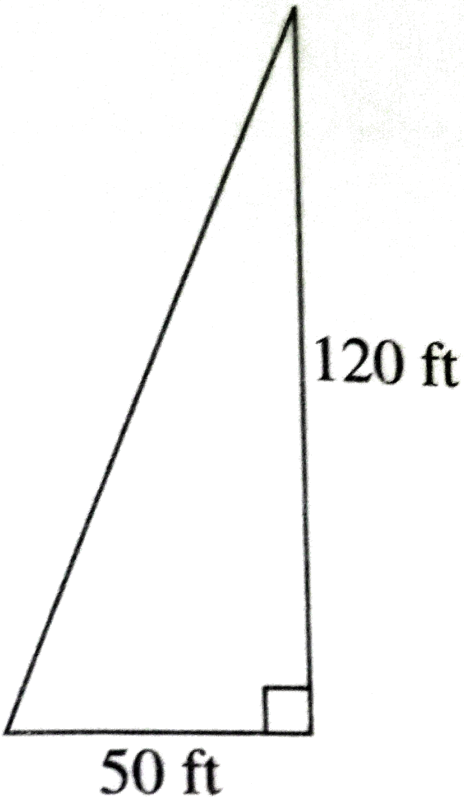
C. 405°

D. 810°

Answer: C

Watch Video Solution

38. Greg is making a triangular sail for a boat , shaped like a right triangle and shown below .



Sail material costs $8.99 for 150 square feet . If the material can be purchased in any quantity , which of the following is closest to the cost in dollars of the material needed to fill the area of the sail as shown ?

A. 360

B. 280

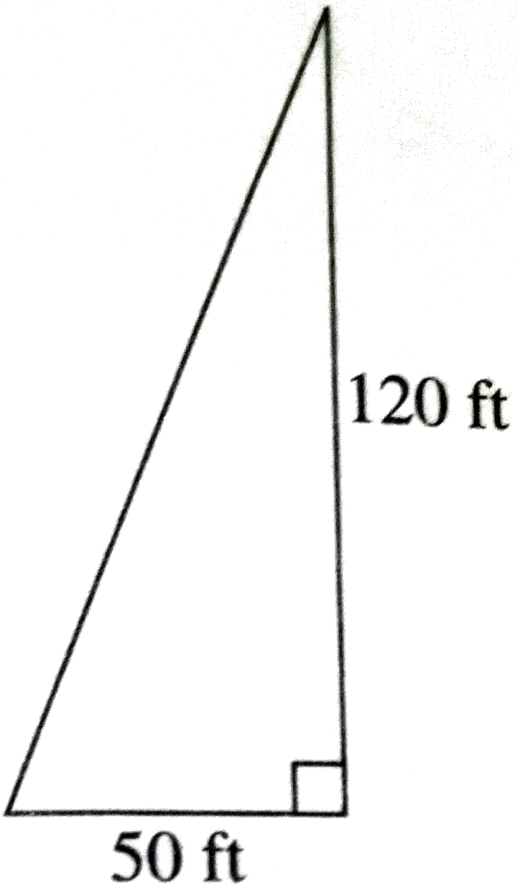
C. 200

D. 180

Answer: D

View Text Solution

39. Greg is making a triangular sail for a boat , shaped like a right triangle and shown below .



To determine how much trim to buy for the sail, Greg calculated the sail,s perimeter . What is the sail's perimeter, in feet ?

A. 300

B. 290

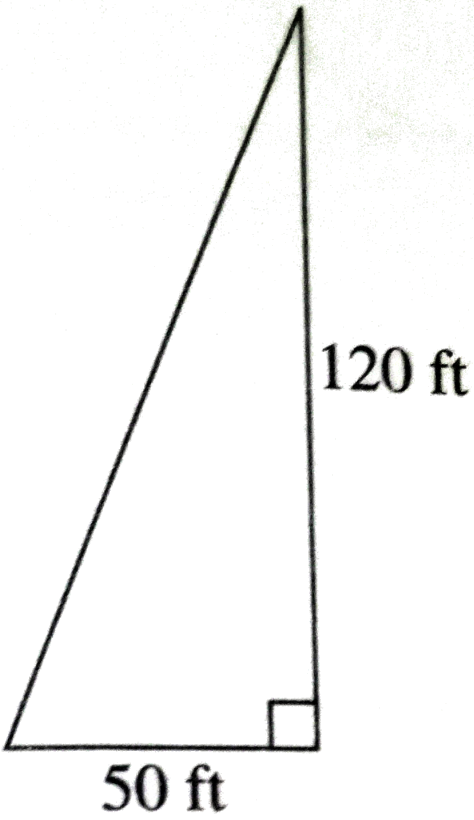
C. 275

D. 220

Answer: A

View Text Solution

40. Greg is making a triangular sail for a boat , shaped like a right triangle and shown below .



The angle opposite the 120-foot side measures about 65.2°. Greg would like to make a second sail. This one will still be a right triangle with a 50-foot side as one leg, but the 120-foot side will be shortened until the angle opposite that

side is about 10°. By about how many feet will Greg need to shorten the 120-foot side ?

A. 9

B. 49

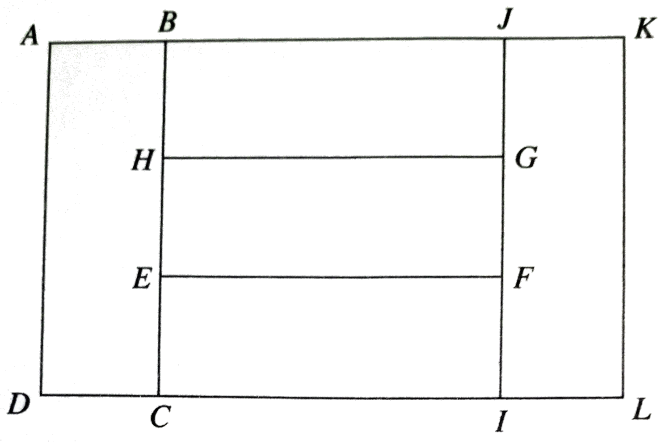
C. 71

D. 111

Answer: D

View Text Solution

41. Rectangle AKLD consists of 5 congruent rectangles , as shown in the figure below. Which of the following is the ratio of the length of $\overline{AK}$ to the length of $\overline{AD}$?



A. $1:1$

B. $2:1$

C. $5:3$

D. $1:3$

Answer: C

View Text Solution

42. Jackson High School's basketball team scored an average of 90 points in each of the first 10 games of the season. If it scored 102 points in each of the next 2 games , which of the following is closest to its average for all 12 games ?

A. 102

B. 98

C. 96

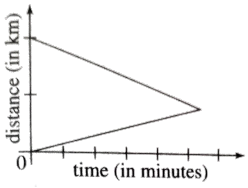
D. 92

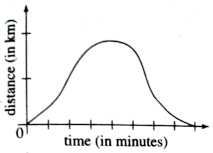
Answer: D

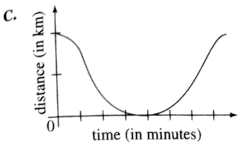
View Text Solution

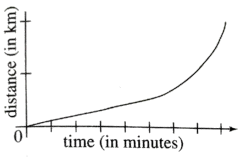
43. A ferry boat travels from a dock on the mainland toward an island , stops to discharge and load passengers, then returns to the

mainland dock . Among the following graphs, which one best represents the relationship between the distance , in kilometers , of the ferry from the island and the time, in minutes, from when the ferry leaves the mainland dock until it returns ?

A. 

B. 

C. 

D. 

Answer: C

View Text Solution

44. A right triangle has sides measuring 12 inches , 35 inches , and 37 inches . What is the cosine of the angle that lies opposite the 35-inch side ?

A. $\frac{12}{35}$

B. $\frac{35}{37}$

C. $\frac{35}{12}$

D. $\frac{12}{37}$

Answer: D

Watch Video Solution

45. The noncommon rays of 2 adjacent angles form a straight angle. The measure of one angle is 4 times the measure of the other

angle . What is the measure of the smaller angle ?

A. 36°

B. 45°

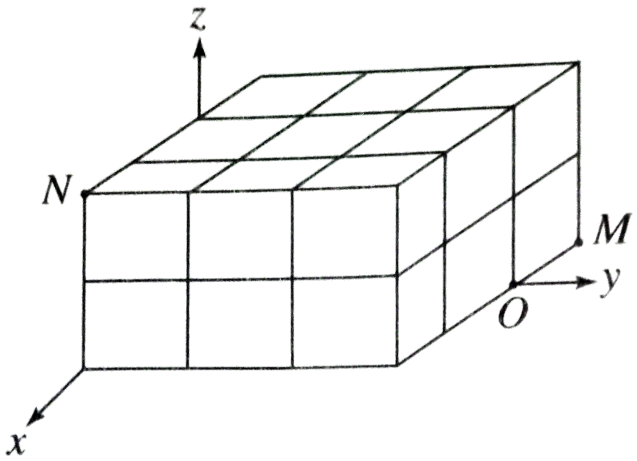
C. 90°

D. 135°

Answer: A

View Text Solution

46. A rectangular solid consisting of 18 smaller cubes that are identical is positioned in the standard (x,y,z) coordinate system, as shown below . Vertex M has coordinates of (-1,3,0) and point O on the y-axis has coordinates of (0,3,0). What are the coordinates of vertex N ?



A. (3,0,2)

B. (2,2,0)

C. (3,0,-1)

D. (2,0,2)

Answer: D

View Text Solution

47. What is the median of the data given below ?

18,25,19,41,23,29,35,19

A. 32

B. 26

C. 25

D. 24

Answer: D

View Text Solution

48. Let a $\otimes$ b =$(-2a - b)^2$ for all integers a and b . Which of the following is the value of $-5 \otimes 3$?

A. -15

B. -2

C. 49

D. 91

Answer: C

View Text Solution

49. For all negative even integers x , which of the following is a correct ordering of the terms x, x^x, $((-x)!)^x$, and $((-x)!)^{(-x)!}$?

A. 1

B. $((-x)!)^{(-x)!} \geq x^x \geq ((-x)!)^x \geq x$

C. 3

D. 4

Answer: B

Watch Video Solution

50. What is the perimeter of quadrilateral STUR if it has vertices with (x,y) coordinates S(0,0), T(2,-4),U(6,-6) , R(4,-2) ?

A. $2\sqrt{20}$

B. $2\sqrt{5}+2\sqrt{20}$

C. $8\sqrt{5}$

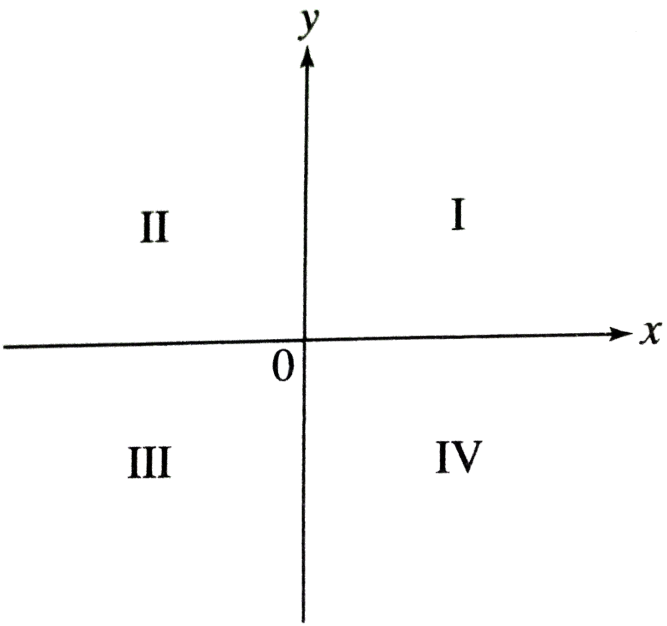
D. 80

Answer: C

View Text Solution

51. The line with equation 5y-4x=20 does NOT lie in which quadrant(s) of the standard (x,y)

coordinate plane below ?



A. Quadrant I only

B. Quadrant II only

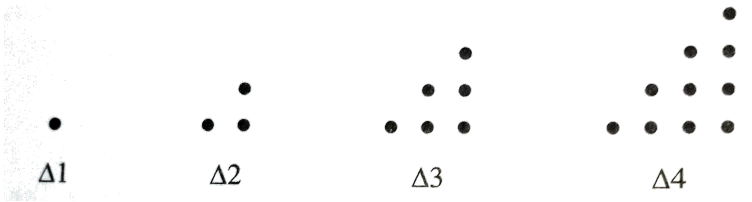
C. Quadrant III only

D. Quadrant IV only

Answer: D

Watch Video Solution

52. The figure below shows representations of the first 4 triangular numbers, $\triangle_1$ through $\triangle_4$. How many dots will be in $\triangle_{24}$?



A. 144

B. 168

C. 288

D. 300

Answer: D

View Text Solution

53. The four midpoints of the sides of a square represent four points on a circle . Line segments connect the opposing corners of the square . This circle and these line segments divide the square into how many

individual , non-overlapping regions of nonzero area ?

A. 4

B. 5

C. 10

D. 12

Answer: D

View Text Solution

54. The circumference of a circle is 50 inches.

How many inches long is its radius ?

A. $\frac{25}{\pi}$

B. $\frac{50}{\pi}$

C. $\frac{100}{\pi}$

D. 50π

Answer: A

View Text Solution

55. In the (x,y) coordinate plane, what is the diameter of the circle having its center at (-6,1) and (0,9) as one of the endpoints of a radius ?

A. 10

B. 14

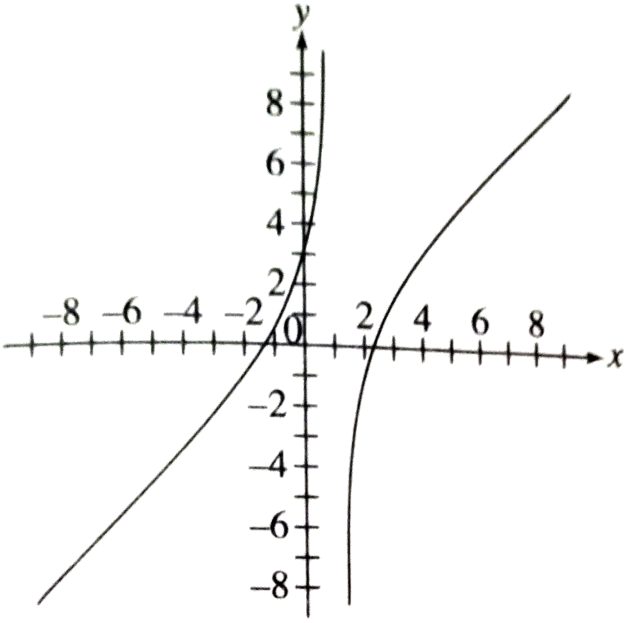
C. 20

D. 28

Answer: C

View Text Solution

56. The graph of the function $f(x) = \dfrac{x^2 - x - 3}{x - 1}$ is shown in the standard (x,y) coordinate plane below . Which of the following , if any is a list of each of the vertical asymptotes of f(x) ?



A. This function has no vertical asymptote .

B. $y = -\frac{1}{2}x + 1$

C. y=2x-1

D. x=1

Answer: D

View Text Solution

57. The product of 2 distinct positive prime numbers is an even number, and one less than the product is a prime number. All of the

following prime numbers could be one of the original prime numbers EXCEPT ?

A. 2

B. 3

C. 5

D. 7

Answer: C

Watch Video Solution

58. Connecting the midpoints of opposite sides of any quadrilateral to the midpoints of the adjacent sides must always create which of the following ?

A. Point

B. Line

C. Circle

D. Parallelogram

Answer: D

Watch Video Solution

Watch Video Solution

59. If a(x)=b(x)+c(x), where b(x)= $3x^2 - 8x + 113$ and $c(x) = -3x^2 + 18x + 7$ and x is an integer , than a(x) is always divisible by which of the following ?

A. 6

B. 7

C. 10

D. 12

Answer: C

View Text Solution

60. Isosceles triangle T_1 has a base of 12 meters and a height of 20 meters . The vertices of a second triangle T_2 are the midpoints of the sides of T_1. The vertices of a third triangle , T_3 , are the midpoints of the sides of T_2. Assume the process continues indefinitely , with the vertices of T_{k+1} being the midpoints of the sides of T_k for every

positive integer k. What is the sum of the areas, in square meters, of $T_1, T_2, T_3, \ldots$?

A. 30

B. 40

C. 120

D. 160

Answer: D

Watch Video Solution