MATHS

BOOKS - ARIHANT PUBLICATION JHARKHAND

MODEL SOLVED PAPER

Section C Mathematics

1. Simplify $\dfrac{x^2 - 1}{x + 1} \div \dfrac{x^3 - 1}{x^2 + x + 1}$

A. $(x - 1)$

B. (x+1)

C. $x^2 + x + 1$

D. 1

Answer: D

> ▶ Watch Video Solution

---

2. Sides of a cuboid are 3 cm, 4 cm, 12 cm then the length of the diagonal of a cuboid is

A. 15

B. 7

C. 16

D. 13

Answer: D

▶ **Watch Video Solution**

3. Area of floor of a room is 48 sq m. If its height is 5

m, then the volume of the room is

A. 240 sq m

B. 240 cubic decimeter

C. 240 cubic meter

D. None of these

Answer: C

4. Height and radius of a cylinder are increased by 10%, then the volume of the cylinder, is

A. 0.331

B. 0.4

C. 0.1

D. 1

Answer: A

5. A right angled triangle rotate about its any side which makes right angle, the figure is formed

    A. Cylinder

    B. Prism

    C. Sphere

    D. Cone

Answer: D

6. In two spheres radius of one is half of the other, then volume of second sphere with respect to first, is

    A. double

    B. four times

    C. eight times

    D. $\dfrac{22}{7}$ times

Answer: C

7. If $x = 2\sin^2\theta$ and $y = 2\cos^2\theta + 1$ then the value of x+ y is

A. 2

B. 3

C. 1

D. $\dfrac{1}{2}$

Answer: B

▶ **Watch Video Solution**

8. Value of $\dfrac{2\tan 30°}{1 + \tan^2 30°}$

A. $\sin 60°$

B. $\cos 60°$

C. $\tan 60°$

D. $\sin 30°$

Answer: A

▶ **Watch Video Solution**

9. Value of $\dfrac{1 - \tan^2 45°}{1 + \tan^2 45°}$ is

A. $\tan 90°$

B. 1

C. $\sin 45°$

D. 0

Answer: D

▶ **Watch Video Solution**

---

10. Sin 2A= 2 sin A is true when A equals to

A. $0°$

B. $30°$

C. 45°

D. 60°

Answer: A

▶ **Watch Video Solution**

11. The angle of elevation of the top of a tower from a point on the ground, which is 30 m away from the foot of the tower, is 30°. Find the height of the tower.

A. $\dfrac{10}{\sqrt{3}} m$

B. $10\sqrt{3}$ m

C. $15\sqrt{2}$ m

D. 15 m

Answer: B

▶ **Watch Video Solution**

12. ABC and BDE are two equilateral triangle such that D is the mid-point of BC. Ratio of the areas of triangles ABC and BDE is

A. 2:1

B. 1:2

C. 4:1

D. 1:4

Answer: C

▶ **View Text Solution**

13. Sides of two similar triangles are in the ratio 4:9.

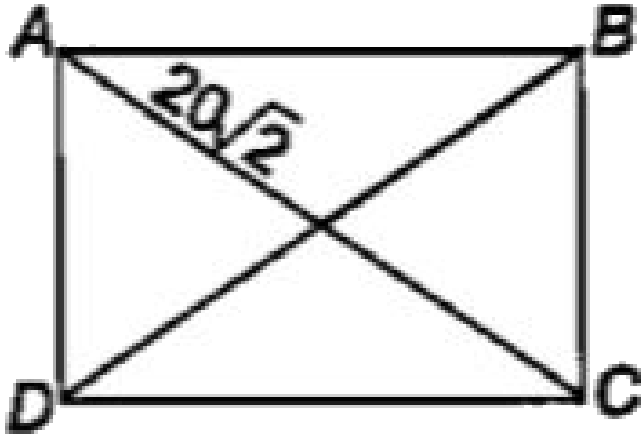Areas of these triangles are in the ratio

A. 2:3

B. 4:9

C. 18:16

D. 16: 81

Answer: D

14. In a given figure, ABCD is a square, if $AC = 20\sqrt{2}$ cm, then area of $\triangle ABC$ is

A. $100 sqcm$

B. $50 sqcm$

C. $150 sqcm$

D. $200 sqcm$

Answer: D

▶ **Watch Video Solution**

15. Diagonal of first square is half of the diagonal of the other, then the area of second square with respect to the area of the first square will be

A. double

B. halved

C. four times

D. eight times

Answer: C

▶ Watch Video Solution

16. $\triangle ABC$ is made on diameter in semicircle. Such that $\angle BAC = 30°$, the value of $\angle BCA$ is
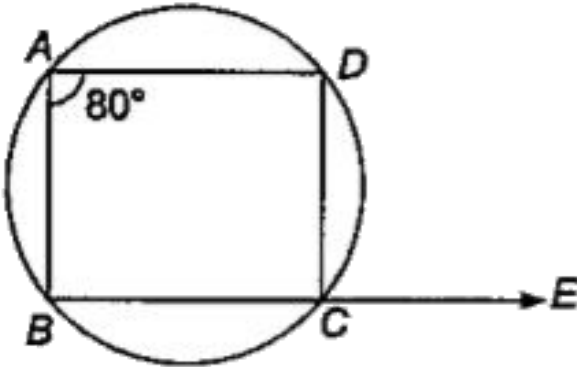
A. 30

B. $45°$

C. $60°$

D. $80°$

Answer: C

▶ Watch Video Solution

17. In a given figure, ABCD is cyclic quadrilateral, in which $\angle DAB = 80°$, then measures of $\angle DCE$ is
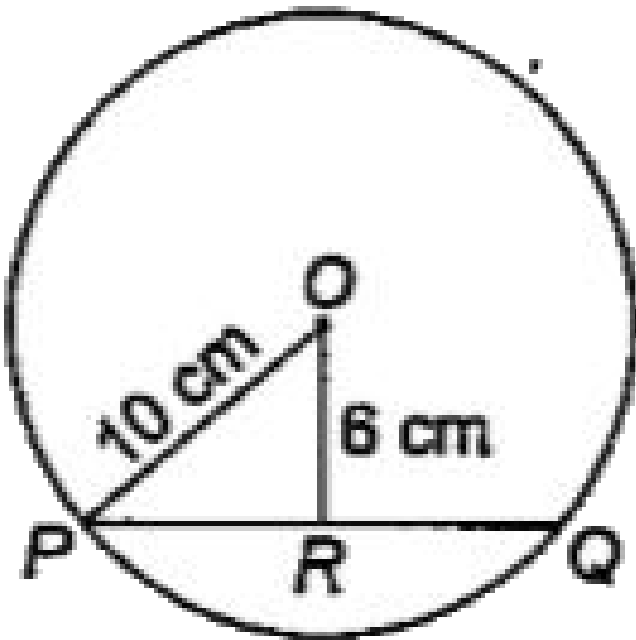

A. $80°$

B. $90°$

C. $120°$

D. $140°$

Answer: A

18. In a given figure, a circle with centre O. Radius of circle is OP = 10 cm and chord PQ on which OR = 6 cm is perpendicular, length of PQ is

A. 4 cm

B. 8 cm

C. 10 cm

D. 16 cm

Answer: D

▶ **Watch Video Solution**

19. Chord AB = 10 cm of a circle with centre o

produce AB such that BP = 8 cm and a tangent PC

drawn from P on the circle, the length of PC is

A. 144 cm

B. 18 cm

C. 12 cm

D. 10 cm

Answer: C

▶ **View Text Solution**

20. Distance between centre of two circles is 4.5 cm, their radius are 2 cm and 2.5 cm, respectively, the number of tangents that can be drawn on them are equal to

A. 1

B. 2

C. 3

D. None of these

Answer: A

▶ **Watch Video Solution**

---

21. ABCD is a cyclic quadrilateral. PBQ is a tangent drawn from the point B of the circle, if $\angle DBP = 65°$, then measures of $\angle BCD$ is

A. $65°$

B. $90°$

C. $110°$

D. $115°$

Answer: D

▶ **Watch Video Solution**

---

22. Median of the data

6, 9, 11, 14, 18, 22, 28, 31, 34 and 43 is

A. 18

B. 16

C. 20

D. 22

Answer: C

▶ **Watch Video Solution**

---

23. The arithmetic mean of 1,2,3, ... n is

A. $\dfrac{n+1}{2}$

B. $\dfrac{n-1}{2}$

C. $\dfrac{n}{2}$

D. $\dfrac{n}{2} + 1$

Answer: A

▶ **Watch Video Solution**

24. The measures of central tendency mean, mode, median are connected by a relation.

    A. mode=3 mean-2 median

    B. mode = 2 median-3 mean

    C. mode=3 median-2 mean

    D. mode=3 median+ 2 mean

Answer: C

25. Which of the following is not a measures of central tendency?

    A. Mean

    B. Median

    C. Mode

    D. Standard deviation

Answer: D

26. Rhombus box is known as

A. Decision box

B. Output Box

C. Input box
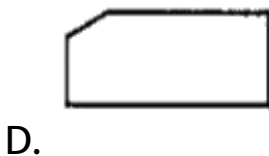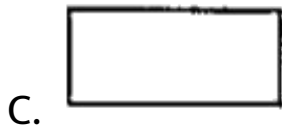
D. Terminal Box

Answer: A

27. Shape of the decision box is

A.

B.

C.

D.
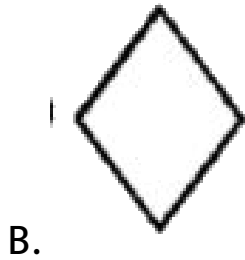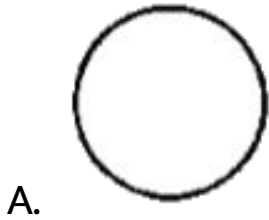
Answer: B

28. Flow charts involving loops are shown as

A.
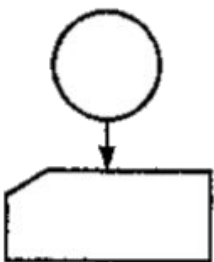
B.
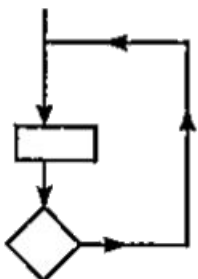
C.
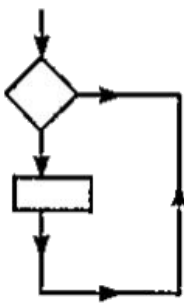
D.

Answer: D

▶ **View Text Solution**

29. A wire is in the shape of a square of side 10 cm. If the wire is rebent into a rectangle of length 12 cm, find its breadth. Which figure encloses more area and by how much?

A. 32 cm

B. 22 cm

C. 40 cm

D. 8 cm

Answer: D

▶ **Watch Video Solution**

30. The perimeter of a rectangular sheet is 100 cm.

If the length is 35 cm, then breadth will be

A. 15 cm

B. 25 cm

C. 35 cm

D. 45 cm

Answer: A

31. The circumference of a circular sheet is 154 m. The area of the sheet is equal to

A. $1886.5m^2$

B. $1806.5m^2$

C. $1886.5m^2$

D. $1688.5m^2$

Answer: A

▶ **Watch Video Solution**

32. $\dfrac{p}{q}$ form of 3.777 ... is

A. $\dfrac{3}{10}$

B. $\dfrac{3}{11}$

C. $\dfrac{34}{9}$

D. $\dfrac{37}{10}$

Answer: C

33. Which of the following is a surd?

A. $\sqrt{64}$

B. $\sqrt{20} \times \sqrt{45}$

C. $\sqrt{5} \times \sqrt{25}$

D. $8\sqrt{10} + 4\sqrt{15}$

Answer: D

34. Find the value of a and b if $\dfrac{\sqrt{3}-1}{\sqrt{3}+1} = a + b\sqrt{3}$

A. a=1,b=2

B. a=2,b=-1

C. a=-1,b=2

D. a=3, b=1

Answer: B

▶ **Watch Video Solution**

35. Find the area of an equilateral triangle whose side is a cm.

A. $\dfrac{\sqrt{3}}{4}a^2$

B. $\dfrac{1}{2}a^2$

C. $\dfrac{1}{3}a^3$

D. $\dfrac{\sqrt{3}}{2}a^2$

Answer: A

▶ **Watch Video Solution**

36. The perimeter of a rhombus is 20 cm. One of its diagonals measures 8 cm. The area of rhombus is

A. $12 cm^2$

B. $24 cm^2$

C. $80 cm^2$

D. $40 cm^2$

Answer: B

▶ **Watch Video Solution**

37. The area of a hexagon whose one side is 4m , is :

A. $4\sqrt{3}$ sq unit

B. $6\sqrt{3}$ sq unit

C. $24\sqrt{3}$ sq unit

D. $12\sqrt{3}$ sq unit

Answer: C

▶ **Watch Video Solution**

38. From a point Q, the length of the tangent to a circle is 24 cm and the distance of Q from the centre is 25 cm, the radius of the circle is

A. 7 cm

B. 12 cm

C. 15 cm

D. 24.5 cm

Answer: A

▶ **View Text Solution**

39. If the peremeter and the area of a circle are numercally equal, then the radius of the circle is:

A. 2 unit

B. π unit

C. 4 unit

D. 7 unit

Answer: A

▶ **Watch Video Solution**

40. The pair of linear equations, kx + 4y = 5 and 3x +

2y = 5 are consistent when,

A. $k \neq 6$

B. $k = 6$

C. $k \neq 3$

D. $k = 3$

Answer: A

▶ **Watch Video Solution**

---

41. If tangent PA and PB from a point P to a circle with centre O are inclined to each other at angle $80°$, then $\angle POA$ is equal to

A. $50°$

B. $60°$

C. $70\degree$

D. $80\degree$

Answer: A

▶ **View Text Solution**

---

42. When $A = \phi$ then number of elements in P(A) is

A. 1

B. 2

C. 0

D. 3

Answer: A

43. If A and B are two sets, then n(A)+ n(B) is equal to

    A. $n(A \cup B)$

    B. $n(A \cap B)$

    C. $n(A \cup B) - n(A \cap B)$

    D. $n(A \cup B) + n(A \cap B)$

Answer: D

44. If A and B are any two sets then

$(A \cup B) - (A \cap B)$ is equal to

A. A- B

B. B-A

C. $(A - B) \cup (B - A)$

D. None of these

Answer: C

45. The sum of ages of father and his son is 40 yr and difference of their ages is 20 yr, then the age of the father will be

A. 35 yr

B. 30 yr

C. 25 yr

D. 20 yr

Answer: B

▶ **Watch Video Solution**

46. There are 50 paisa coins and 25 paisa coins in a bag, the total coins are 99 and their values is 33.50, then the number of each type of coins separately, is

A. 35,64

B. 30, 69

C. 40, 59

D. 45, 54

Answer: A

 Watch Video Solution

47. If $\left(\sqrt{3}\right)^5 \times 81 = 3^n \times 3\sqrt{3}$ then the value of n is

A. 4

B. 5

C. 6

D. None of these

Answer: B

▶ Watch Video Solution

48. HCF of $\left(1 + x + x^2\right)$ and $1 - x^3$, is

A. 1-x

B. $1 + x + x^2$

C. $1 + x$

D. $1 - x^3$

Answer: B

▶ **Watch Video Solution**

49. LCM of two expressions is $12x^2y^2z$ and their HCF is $4xy$, if one of them is $4x^2y$, then the second expression, is

A. $12x^2y^2z$

B. $12xy^2z$

C. $12xyz$

D. $3yz$

Answer: B

▶ **Watch Video Solution**

---

50. Number of roots the quadratic equation have

A. 1

B. 2

C. 3

D. None of these

Answer: B

> ▶ **Watch Video Solution**

1. The value of a and b in $3\dfrac{7}{a} \times b\dfrac{3}{15} = 8$ is equal to

A. 2,11

B. 11, 2

C. 1,1

D. 2,1

Answer: B

▶ **Watch Video Solution**

---

2. The HCF of $p(x) = 24(6x^4 - x^3 - 2x^2)$ and $q(x) = 20(2x^6 + 3x^5 + x^4)$ is

A. $4x^2(2x + 1)$

B. $6x^3(2x - 1)$

C. $6x^2(2x + 1)$

D. $4x^2(2x - 1)$

Answer: A

> ▶ **Watch Video Solution**

---

3. If $3^{2n-1} = \dfrac{1}{27^{n-3}}$, then the value of n is

A. 5

B. 3

C. 6

D. 2

Answer: D

4. If $\tan\theta + \sin\theta = m$ and $\tan\theta - \sin\theta = n$, then find the value of $m^2 - n^2$.

A. $\sqrt{ab}$

B. $4\sqrt{ab}$

C. $4ab$

D. ab

Answer: B

5. The curved surface area of a cylinder is $1320 \ cm^2$ and its base had diameter 21cm. Find the height and the volume of the cylinder.

A. 10 cm

B. 20 cm

C. 22 cm

D. 25 cm

Answer: B

6. In the given figure, O is the centre of a circle and arc ABC subtends an angle of $130°$ at O. AB is extended to P. Then, $\angle PBC$ is equal to
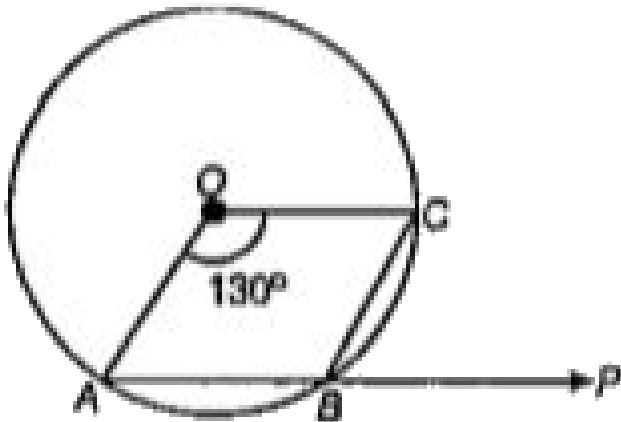
A. $25°$

B. $40°$

C. $65°$

D. $75°$

Answer: C

▶ **Watch Video Solution**

7. Four bells ring at intervals of 4, 6, 8 and 14 seconds. They start ringing simultaneously at 12.00 O' clock. At what time will they again ring simultaneously?

A. 2 min 48s past 12

B. 3 min past 12

C. 3 min 20s past 12

D. None of these

Answer: A

▶ **Watch Video Solution**

8. If 8sinx- 4 = cos.x, the values of sinx are

A. $\dfrac{3}{5}, \dfrac{-5}{13}$

B. $\dfrac{-3}{5}, \dfrac{-5}{13}$

C. $\dfrac{3}{5}, \dfrac{5}{13}$

D. $\dfrac{5}{3}, \dfrac{5}{13}$

Answer: C

9. A conical tent of a diameter 24 m at the base and

its height 16 m. The canvas required to make it is

A. $\dfrac{5280}{7} m^2$

B. $\dfrac{5180}{7} m^2$

C. $\dfrac{4180}{7} m^2$

D. $\dfrac{3480}{7} m^2$

Answer: A

10. In how many different ways can the letters of the word 'ABILITY' be arranged?

A. 5040

B. 720

C. 1260

D. None of these

Answer: D

11. Vinita bought a watch with 24% discount on the selling price. If the watch cost her Rs 779. What is the original selling price of the watch?

A. Rs 1000

B. Rs 950

C. Rs 1040

D. None of these

Answer: D

▶ **Watch Video Solution**

12. Find the average of the following sets of scores.

178,863,441,626,205,349,462,820

A. 505

B. 441

C. 349

D. 493

Answer: D

13. The difference between 38% of a number and 24% of the same number is 135.10. What is 40% of that number?

A. 394

B. 370

C. 378

D. 386

Answer: D

▶ Watch Video Solution

14. Krishan has some hens and some cows. If the total number of animal heads is 59 and the total number of feet is 190, how many cows does Krishan have? (a) 23 (b) 32 (c) 36 (d) Cannot be determined

A. 36

B. 32

C. 23

D. Cannot be determined

Answer: A

▶ **Watch Video Solution**

15. If the numerator of a fraction is increased by 200% and the denominator is increased by 160%, the resultant fraction is $\frac{7}{13}$. What is the original fraction?

A. $\frac{7}{15}$

B. $\frac{2}{15}$

C. $\frac{8}{15}$

D. $\frac{5}{7}$

Answer: A

▶ **Watch Video Solution**

16. Find the measure of an angle if seven times its complement is $10°$ less than three times its supplement .

    A. $30°$

    B. $35°$

    C. $25°$

    D. $20°$

Answer: C

▶ **Watch Video Solution**

17. The age of aman after 15 yr is 4 times the age of that man 15 yr before. His present age is

A. 10yr

B. 15yr

C. 20yr

D. 25yr

Answer: D

▶ **Watch Video Solution**

18. If n coins each of diameter 1.5 cm and thickness 0.2 cm are melted and a right circular cylinder of height 10 cm and diameter 5 cm is made, then n is equal to

A. 336

B. 450

C. 512

D. 555

Answer: D

 Watch Video Solution

19. The value of

$$\frac{-\tan\theta\cot(90°-\theta)+\sec\theta\cos ec(90°-\theta)+\sin^2 55°+\cos^2 55°}{\tan 10°\tan 20°\tan 30°\tan 70°\tan 80°}$$

A. $\dfrac{2}{\sqrt{3}}$

B. $\dfrac{\sqrt{3}}{2}$

C. $-\dfrac{1}{\sqrt{3}}$

D. $\sqrt{3}$

Answer: D

20. In figure, $\angle X = 62°$, $\angle XYZ = 54°$. If YO and ZO are bisectors of $\angle XYZ$ and $\angle XZY$ respectively of $\triangle XYZ$ then $\angle YOZ$ is
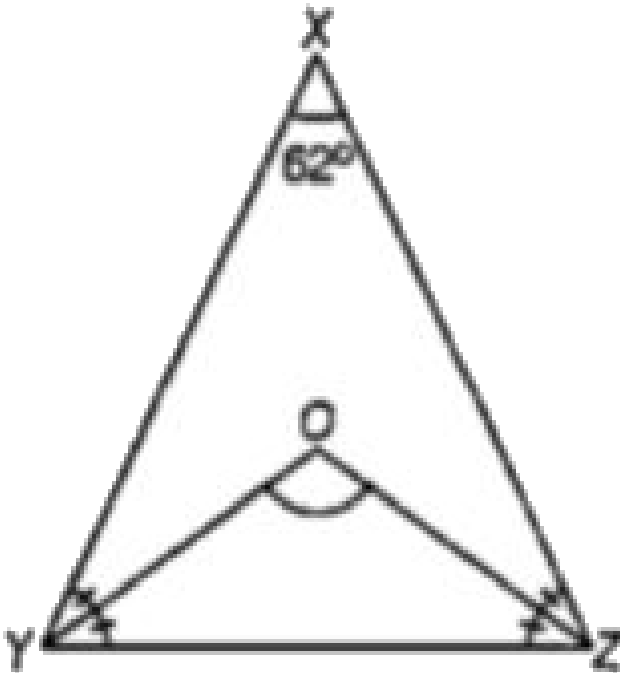
A. $90°$

B. $124°$

C. $31°$

D. $121°$

Answer: D

> ▶ **Watch Video Solution**

21. If $\dfrac{\tan 26° + \tan 19°}{x(1 - \tan 26° \tan 19°)} = \cos 60°$ **, then the**

value of x is

A. 1

B. $\sqrt{2}$

C. 2

D. $\sqrt{3}$

Answer: C

▶ **Watch Video Solution**

---

22. Sita can do a work in 15 days and Gita can do it in 25 days and Meera in 30 days. How long will they take to do the work, if they work together?

A. 7 days

B. 6 days

C. 7/50 days

D. None of these

Answer: D

> ▶ Watch Video Solution

23. A field is in the form of a circle.The cost of plough the field at Rs. 1.50 per m^2 is Rs.5775. The cost of fencing the field at Rs.8.50 per m

A. Rs 1870

B. Rs 2870

C. Rs 1970

D. Rs 2970

Answer: A

> ▶ Watch Video Solution

24. The length and breadth of a room are 13 m and

7 .5 m, respectively. The floor of the room is to be

paved with square tiles of uniform size. Determine

the length of the largest possible size of the tile.

A. 1.0 m

B. 0.5 m

C. 1.5 m

D. 5.0 m

Answer: B

▶ **View Text Solution**

---

25. If the area of a circle is $220 cm^2$, then area of a square inscribed in this circle is

A. $160 cm^2$

B. $175 cm^2$

C. $140 cm^2$

D. $180 cm^2$

Answer: C

> ▶ **Watch Video Solution**

---

26. In a polygon the number of diagonals is 54. the number of sides of the polygon, is

A. 10

B. 12

C. 9

D. None of these

Answer: B

27. A jar contained a mixture of two liquids A and Bin the ratio 4 : 1. When 10 L of the mixture was taken out and 10 L of liquid B was poured into the jar, this ratio becomes 2 : 3. The quantity of liquid A contained in the jar initially was

A. 4L

B. 8L

C. 16L

D. 40L

Answer: D

> ▶ View Text Solution

28. If for a line $m = \tan\theta > 0$, then

A. $\theta = 0$

B. θ is acute

C. $\theta = 90°$

D. θ is obtuse

Answer: B

29. Four horses are tethered at four corners of a square plot of side 63 m, so that they just cannot reach one another. The area left ungrazed is

A. $675.5m^2$

B. $780.6m^2$

C. $785.8m^2$

D. $850.5m^2$

Answer: D

30. The sum of the two numbers is 11 and their product is 30, then the numbers are

A. 8,3

B. 9,2

C. 7,4

D. 6,5

Answer: D

31. Vertices of a $\triangle ABC$ are A(2, 2), B (-4, -4) and C (5, -8) , then the length of the median through C is

A. $\sqrt{65}$

B. $\sqrt{117}$

C. $\sqrt{85}$

D. $\sqrt{113}$

Answer: C

32. What is the sum of all the natural numbers from 1 to 40?

A. 730

B. 820

C. 850

D. 920

Answer: B

▶ **Watch Video Solution**

33. If the mean of the following data is 13.5, then the value of p is

x	5	10	p	20	25
f	10	10	10	2	8

A. 15

B. 150

C. 10

D. None of these

Answer: A

▶ Watch Video Solution

34. If the mean of five observations x, x + 2, x + 4, x + 6, x + 8 is 11, then the mean of the first three observations is

A. 9

B. 11

C. 13

D. None of these

Answer: A

 Watch Video Solution

35. A fast train takes 2 h less for a journey of 300 km in comparison to a slow train whose speed is 5 km/h less than that of the fast train. The speed of the fast train is equal to

    A. 30 km/h

    B. 25 km/h

    C. 40 km/h

    D. 45 km/h

Answer: A

▶ **Watch Video Solution**

36. If $(41)^2$ is added to the square of a number the answer, so obtained is 7457. What is the number?

A. 76

B. 63

C. 81

D. 82

Answer: A

▶ Watch Video Solution

37. The compound interest on Rs 2000 for 1 year at the rate of 8% per annum, when the interest is compounded semiannually the compound interest is

    A. Rs 163.20

    B. Rs 2163.20

    C. Rs 2000

    D. None of these

Answer: A

▶ View Text Solution

38. If

$A = \{1, 4, 7, 8\}, B = \{4, 6, 8, 9\}$ and $C = \{3, 4, 5, 7\}$

be three subsets of a universal set

$U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$. Then, $A \cup (B \cap C')$ is

equal to

   A. $\{1, 6, 7, 8, 9\}$

   B. $\{1, 6, 7, 8, 9, 3\}$

   C. $\{1, 4, 6, 7, 8, 9\}$

   D. None of these

Answer: C

39. If $\log_x(8x - 3) - \log_x 4 = 2$, then the value of x

is

A. $\dfrac{3}{2}$

B. $\dfrac{5}{2}$

C. 0

D. 3

Answer: A

▶ **Watch Video Solution**

40. The expression to be added to $\left(5x^2 - 7x + 2\right)$ to produce $\left(7x^2 - 1\right)$ is

    A. $2x^2 + 7x - 3$

    B. $2x^2 + 3$

    C. $2x^2 - 3$

    D. $2x^2 + 7x$

Answer: A

▶ Watch Video Solution

41. If a flag-staff of 6 m hi,.gh placed on the top of a tower throws a shadow of $2\sqrt{3}$ m along the ground, then the angle that the sun makes with the ground is

A. $60°$

B. $30°$

C. $90°$

D. None of these

Answer: A

▶ View Text Solution

42. A man can row at 5 kmph in still water. If the velocity of current is 1 kmph and it takes him 1 hour to row to a place and come back, how far is the place? 2. $4km$ b. 2. $5\ km$ c.3 km d. 3. 6 km

A. 2.4 km

B. 2.5 km

C. 3 km

D. 3.6 km

Answer: A

▶ **Watch Video Solution**

43. A certain amount was divided between A and B in the ratio 4:3. If B's share was Rs. 4800, the total amount was :

A. Rs 11200

B. Rs 6400

C. Rs 19200

D. Rs 39200

Answer: A

▶ **Watch Video Solution**

44. The value of k for which the lines $x + 2y = 9$ and $kx + 4y = -5$ are parallel, is

A. k = 2

B. k = 1

C. k = - 1

D. k = -2

Answer: A

▶ Watch Video Solution

45. A rectangular water tank is 3m long, 2m wide and 5 m high. How many litres of water can it hold?

A. 30000

B. 15000

C. 25000

D. 35000

Answer: A

▶ Watch Video Solution

46. Minimum value of $x^2 + \dfrac{1}{x^2 + 1} - 3$ is

A. 0

B. -1

C. -3

D. -2

Answer: D

▶ Watch Video Solution

47. The amount of a certain sum at compound interest for 2 year at 5% is Rs 4410. The sum is

A. Rs 4000

B. Rs 4200

C. Rs 3900

D. Rs 3800

Answer: A

▶ **View Text Solution**

---

48. The side (in cm) of a right triangle are x - 1, x and

x + 1. The area of triangle is

A. $5cm^2$

B. $3cm^2$

C. $6cm^2$

D. None of these

Answer: C

▶ **Watch Video Solution**

49. $x - y = 2$ and $xy = 24$, $find \dfrac{1}{x} + \dfrac{1}{y}$

A. $\dfrac{5}{12}$

B. $\dfrac{1}{12}$

C. $\dfrac{1}{6}$

D. $\dfrac{25}{6}$

Answer: A

---

50. The factors of $x^4 + x^2 + 25$ are

$(x^2 + 3x + 5)(x^2 - 3x + 5)$

$(x^2 + 3x + 5)(x^2 + 3x - 5)$

$(x^2 + x + 5)(x^2 - x + 5)$ (d) none of these

A. $(x^2 + 5 - 3x)(x^2 + 5x - 3)$

B. $(x^2 + 5 - 3x)(x^2 + 5 + 3x)$

C. $(x^2 + 5 - 3x)(x^2 + 5 - 3x)$

D. None of these

Answer: B

Section I Mathematics

1. If A = {1, 3, 9, 10, 21), B= {4, 6, 8, 10} and C = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}, then the value of $A \cap (B \cap C)$ is

A. {8, 10}

B. {10}

C. None of these

D. {2, 10}

Answer: B

2. The value of $\dfrac{\log_{10}(bc)}{a^2} + \dfrac{\log_{10}(ac)}{b^2} + \dfrac{\log_{10}(ab)}{c^2}$ is

A. none of these

B. 1

C. 2

D. 0

Answer: D

3. If the average of seven consecutive even numbers is 62, then the one-fourth of twice of total of first and sixth number is

   A. 60

   B. 62

   C. None of these

   D. 61

Answer: D

4. If the median of 59, 62, 65, x, x + 2, 72, 85 and 94 is

69, then the value of x is

A. 68

B. 67

C. None of these

D. 69

Answer: A

▶ **Watch Video Solution**

5. Five years earlier Ram was three times older than Shyam. The age of Ram will twice the age of Shyam after 10 yr. The present age of Ram and Shyam is

    A. 50 yr and 20 yr

    B. 30 yr and 10 yr

    C. None of these

    D. 35 yr and 15 yr

Answer: A

▶ **Watch Video Solution**

6. Simplify $\dfrac{\sin 75^\circ - \sin 15^\circ}{\cos 75^\circ + \cos 15^\circ}$

A. $\dfrac{2}{\sqrt{3}}$

B. none of these

C. $\dfrac{1}{\sqrt{3}}$

D. $\sqrt{3}$

Answer: C

▶ **Watch Video Solution**

7. Volume of a perpendicular circular cone A is thrice the volume of perpendicular circular cone B.

The height of cone B is the thrice of height of cone

A. The ratio of radius of A to radius of B is

A. $3:1$

B. $2:1$

C. $3:2$

D. $2:3$

Answer: A

▶ **View Text Solution**

8. If the total of two numbers is 25 and its multiplication is 144, then their difference is

A. 5

B. 7

C. 4

D. 6

Answer: B

> ▶ **Watch Video Solution**

9. The coordinates of angular point of a $\triangle$ ABC are A(0,1), B(2,0) and C(-1,-2). Find the equation of side AB of the triangle.

    A. x-2y=1

    B. x + y = 2

    C. x + 2y = 2

    D. x + 3y = 1

Answer: C

▶ **Watch Video Solution**

10. In the group of 240 students, 200 opts for history and 90 opts for Geography. If 20 students do not opt for History as well as Geography, then how many students opt for both the subjects i.e. History and Geography both

A. 70

B. 40

C. 170

D. none of these

Answer: A

▶ **Watch Video Solution**

11. $\left(\dfrac{a}{b}\right)^{x-1} = \left(\dfrac{b}{a}\right)^{x-3}$, then the value of x is $\dfrac{1}{2}$

b. 1 c. $\dfrac{7}{2}$ d. 2

A. 0

B. 1

C. 2

D. 3

Answer: C

▶ **Watch Video Solution**

12. If (4, - 2), (2, 4) and (5,5) are the vertex of any triangle, then it's incentre is

A. $\left(\dfrac{5}{2}, \dfrac{5}{2}\right)$

B. $\left(\dfrac{7}{3}, \dfrac{7}{3}\right)$

C. $\left(\dfrac{5}{3}, \dfrac{5}{3}\right)$

D. $\left(\dfrac{7}{2}, \dfrac{7}{2}\right)$

Answer: A

▶ **View Text Solution**

13. The area of a square made in a circle of radius r is

    A. πr^2

    B. $3r^2$

    C. $2r^2$

    D. $4r^2$

Answer: C

> ▶ **Watch Video Solution**

14. The maximum value of $\cos\theta + \sin\theta$, if

A. $\theta = 45°$

B. $\theta = 60°$

C. $\theta = 90°$

D. $\theta = 30°$

Answer: A

▶ **Watch Video Solution**

15. The value of a and b in $\dfrac{4 + 3i}{3 + i} = a + ib$ is

A. $\dfrac{3}{2}, \dfrac{1}{2}$

B. $\dfrac{1}{2}, \dfrac{3}{2}$

C. $-\dfrac{3}{2}, \dfrac{1}{2}$

D. none of these

Answer: A

▶ **Watch Video Solution**

16. If x + y = 5, y + z = 7, z + x = 6, then the value of x, y

and z are

A. 2, 3, 4

B. 2, 4,3

C. 3,2,4

D. 4,3,2

Answer: A

17. If $\dfrac{\sqrt{x+2} + \sqrt{x-3}}{\sqrt{x+2} - \sqrt{x-3}} = 5$, then the value of x is

A. 3

B. 5

C. 0

D. 7

Answer: D

---

18. Find the median of the distribution. 5, 9, 4, 6, 12,

8

    A. 7

    B. 9

    C. 6

    D. 5

Answer: A

19. If $\dfrac{4a - 5b}{4a + 5b} = \dfrac{1}{6},$ then the value of a:b is

    A. $7 : 4$

    B. $7 : 3$

    C. $4 : 7$

    D. $3 : 2$

Answer: A

20. The shadow of a tower standing on a level ground is found to be 40 m longer when the Suns altitude is $30o$ than when it is $60o$. Find the height of the tower.

A. $20\sqrt{3}m$

B. $20m$

C. $10\sqrt{3}m$

D. $30\sqrt{3}m$

Answer: A

▶ **Watch Video Solution**

21. If (x,-6),(2, y) and (2,6) are the vertices of a triangle and (33) and $\left(\dfrac{10}{3}, \dfrac{1}{3} \right)$ is its centroid, then the value of x and y respectively

    A. 6 and 2

    B. -2 and 4

    C. 4 and 2

    D. 2 and 4

Answer: A

▶ **View Text Solution**

22. $(1 + \cos\theta)(1 - \cos\theta)\left(1 + \cot^2\theta\right) = 1$

A. 0

B. 1

C. $\dfrac{1}{2}$

D. $\sqrt{3}$

Answer: B

▶ **Watch Video Solution**

23. The roots of the quadratic equation $3x^2 - 5x + 2 = 0$ are

A. $\left(\dfrac{2}{3}, 1\right)$

B. $(1, 1)$

C. $\left(\dfrac{1}{3}, 1\right)$

D. none of these

Answer: A

▶ **Watch Video Solution**

---

24. The number of terms in arithmetics series 7, 11, 15,...,139 is

A. 40

B. 34

C. 30

D. 32

Answer: B

> ▶ **Watch Video Solution**

---

25. If α and β are the roots of equation $ax^2 + bx + c = 0$, then the value of $\dfrac{\alpha}{\beta} + \dfrac{\beta}{\alpha}$ is

A. $\dfrac{b^2 - 2ac}{ac}$

B. $\dfrac{b^2 - ac}{ac}$

C. $\dfrac{c^2 - 2ab}{ab}$

D. $\dfrac{c^2 - a^2}{ab}$

Answer: A

▶ **Watch Video Solution**

---

26. A point C is called the midpoint of a line segment $\overline{AB}$ if

    A. C is an interior

    B. AC=CB

    C. C is an interior point of AB, such that AC = CB

D. AC + CB = AB

Answer: B

▶ **Watch Video Solution**

---

27. In a histogram each class rectangle is constructed with base as

    A. frequency

    B. class intervals

    C. range

    D. size of class

Answer: B

28. The value of $3. \sqrt{256} - 10. \sqrt[3]{125} + \sqrt[4]{81}$ is

A. 1

B. 0

C. 2

D. none of these

Answer: A

29. The sides of two symmetrical triangles are in the ratio 4:9. The ratio of area of these triangles is

    A. $2:3$

    B. $4:9$

    C. $18:19$

    D. $16:81$

Answer: D

▶ View Text Solution

30. The volume of two cylinders are equal and their heights are in the ratio 1:3. Then, the ratio of their radius are

A. $4 : \sqrt{3}$

B. $3 : 2\sqrt{3}$

C. $2 : \sqrt{3}$

D. $3 : \sqrt{3}$

Answer: D

▶ **Watch Video Solution**

31. If the length of shadow of a pole on a level ground is twice the length of the pole, the angle of elevation of the Sun is
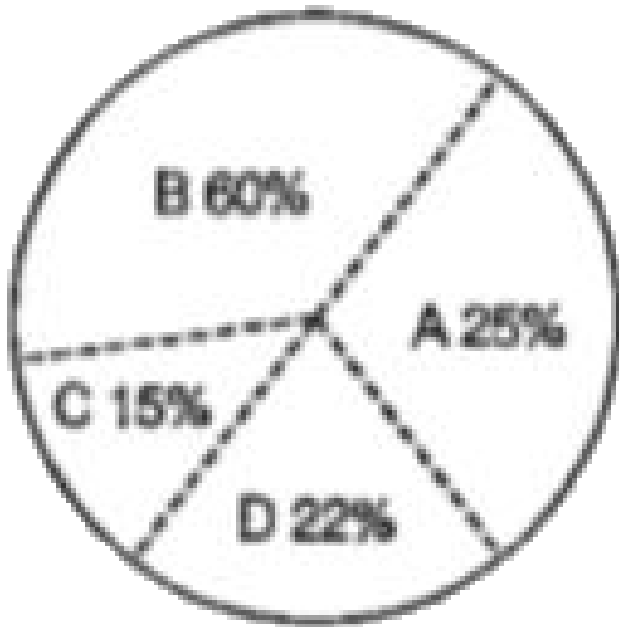
A. $30°$

B. $42°$

C. $60°$

D. none of these

Answer: D

▶ Watch Video Solution

32. Given, figure showing the percentage of people staying in given four Villages A, B, C and D. Then, that is called

A. pie chart

B. line chart

C. bar chart

D. None of these

Answer: A

▶ **Watch Video Solution**

---

33. $p \wedge (q \wedge r) = (p \wedge q) \wedge r$ is

    A. distributive law

    B. associative law

    C. commutative law

    D. None of these

Answer: B

34. 12 of 26% of $\dfrac{5}{78}$ of 38% of $\dfrac{7}{152}$ of 10000= ?

A. 36

B. 35

C. 41

D. 52

Answer: B

35. The value of $\sin^4 A - \cos^4 A$ is

A. cos 2A

B. sin 2A

C. -cos 2A

D. -sin 2A

Answer: C

▶ **Watch Video Solution**

36. If roots of equation $px^2 + qx + 3 = 0$ are reciprocal, then

    A. p= 3

    B. q = 3

    C. p+q = 0

    D. p-q = 0

Answer: A

▶ **Watch Video Solution**

37. Mean and median of a simple distribution are 38 and 39 respectively. Then, mode will be

A. 36

B. 37

C. 41

D. 40

Answer: C

> ▶ **Watch Video Solution**

38. π is

A. an integer

B. a rational number

C. an irrational number

D. None of these

Answer: C

▶ **Watch Video Solution**

---

39. The value of

$$\left(x^{\log_{10} - y - \log_{10} z}\right) \times \left(y^{\log_{10} z - \log_{10} x}\right) \times \left(z^{\log_{10} x - \log_{10} y}\right)$$

is

A. 0

B. 1

C. e

D. none of these

Answer: B

▶ View Text Solution

40. If (x-6) is the HCF of $x^2 - 2x - 24$ and $x^2 - kx - 6$, then what is the value of k is

A. 3

B. 5

C. 6

D. 8

Answer: B

▶ **Watch Video Solution**

---

41. The class marks of a frequency distribution are

15, 20, 25, 30. The class corresponding to the class

mark 20 is

A. 12.5-17.5

B. 17.5-22.5

C. 18.5-21.5

D. 19.5 -20.5

Answer: B

▶ **View Text Solution**

42. The difference between two numbers is 26 and one number is three times the other. Find them.

A. 42,14

B. 36,12

C. 39,13

D. none of these

Answer: C

▶ **Watch Video Solution**

---

43. $p \Rightarrow$ is false , if

A. p true, q true

B. p true, q false

C. p false, q true

D. p false, q false

Answer: B

44. In the class intervales $10 - 20,\ 20 - 30,$ the number is 20 is included in

A. 44489

B. 20-30

C. 10-20 and 20-30

D. None of these

Answer: B

45. If 8x + 5y = 9, 3x + 2y = 4, then the value of x and y are

A. -2,5

B. 1,1

C. 5,-2

D. 3, - 2

Answer: A

46. Convert $(10101111)_2$ from binary to decimal

A. 175

B. 165

C. 275

D. 155

Answer: A

▶ Watch Video Solution

47. If the equation $2x^2 + kx + 3 = 0$ has two equal roots, then the value of k is

A. $\pm 2\sqrt{3}$

B. $\pm \sqrt{6}$

C. $\pm 2\sqrt{6}$

D. none of these

Answer: C

▶ **Watch Video Solution**

48. If a is an even positive integer and b is an odd positive integer, then which of the following statement is true?

A. a (b - 1) is even

B. a(b - 1) is odd

C. (a - 1) (b - 1) Is even

D. (a - 1) b is even

Answer: A

▶ Watch Video Solution

49. AB and CD are two chords of a circle such that AB= 10 cm, CD = 24 cm and AB|| CD. The distance between AB and CD is 17 cm. Then, the radius of the circle is equal to

A. 13cm

B. 169cm

C. 26cm

D. none of these

Answer: A

▶ **View Text Solution**

---

50. Find the measure of an angle if seven times its complement is $10°$ less than three times its supplement .

A. 30°

B. 35°

C. 25°

D. 20°

Answer: C

▶ **Watch Video Solution**