MATHS

BOOKS - ARIHANT PUBLICATION JHARKHAND

MODEL SOLVED PAPER 2016

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

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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

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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

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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

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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

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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

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

A. $\sin 60°$

B. $\cos 60^\circ$

C. $\tan 60^\circ$

D. $\sin 30^\circ$

Answer: A

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

A. $\tan 90^\circ$

B. 1

C. $\sin 45°$

D. 0

Answer: D

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

A. $0°$

B. $30°$

C. $45°$

D. 60°

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

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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

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13. Sides of two similar triangles are in the

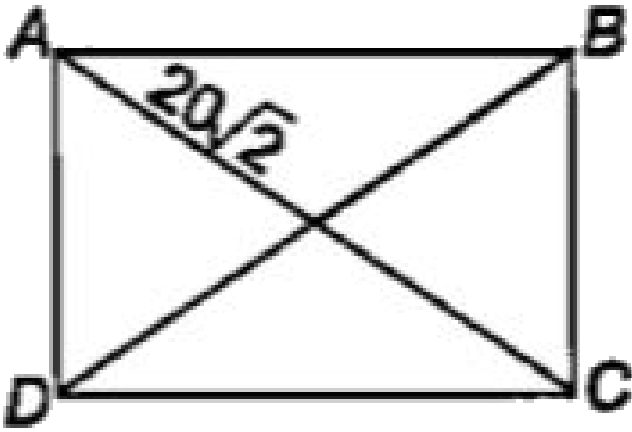ratio 4:9. Areas of these triangles are in the

ratio

A. 2:3

B. 4:9

C. 18:16

D. 16: 81

Answer: D

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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

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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

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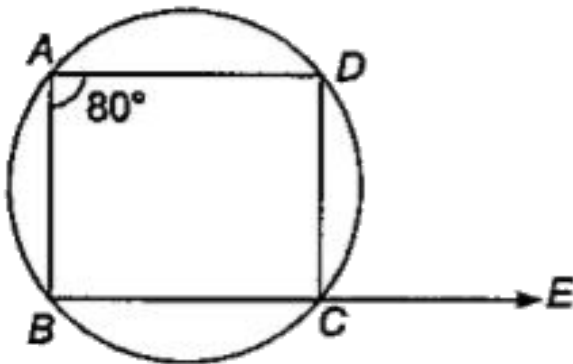
A. 30

B. $45°$

C. $60°$

D. $80°$

Answer: C

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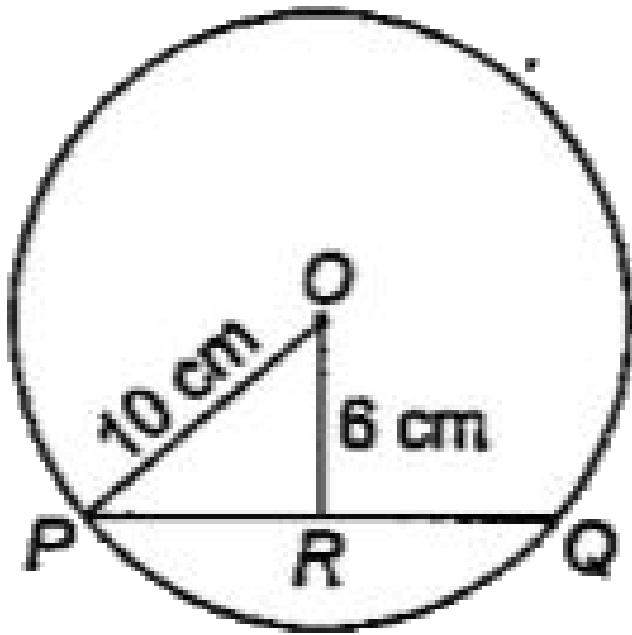
A. $80°$

B. $90°$

C. $120°$

D. $140°$

Answer: A

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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

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

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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

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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

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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

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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

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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

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

A. Mean

B. Median

C. Mode

D. Standard deviation

Answer: D

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26. Rhombus box is known as
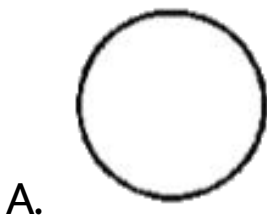
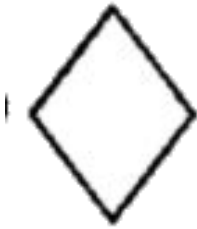A. Decision box

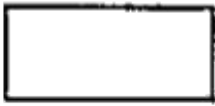B. Output Box

C. Input box

D. Terminal Box

Answer: A

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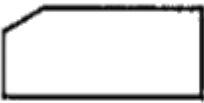**27.** Shape of the decision box is
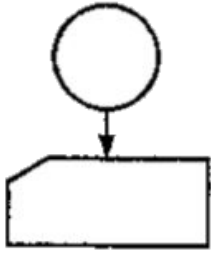

A.

B.

C.

D.

Answer: B

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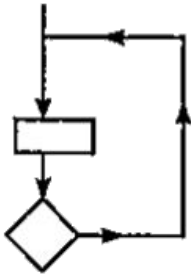**28.** Flow charts involving loops are shown as

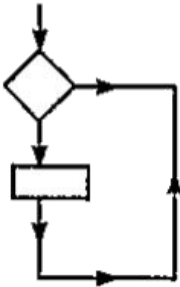A.

B.

C.

D.

Answer: D

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

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

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

$$\frac{\sqrt{3}-1}{\sqrt{3}+1} = a + b\sqrt{3}$$

A. a=1,b=2

B. a=2,b=-1

C. a=-1,b=2

D. a=3, b=1

Answer: B

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

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

A. $12cm^2$

B. $24cm^2$

C. $80cm^2$

D. $40cm^2$

Answer: B

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

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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

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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

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

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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. $70°$

D. $80°$

Answer: A

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

A. 1

B. 2

C. 0

D. 3

Answer: A

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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

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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

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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

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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

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

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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

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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

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50. Number of roots the quadratic equation have

A. 1

B. 2

C. 3

D. None of these

Answer: B

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