MATHS

BOOKS - SUPER COMPANION MADE EASY

ANNUAL EXAMINATION QUESTION PAPER JUNE-2019 (WITH ANSWERS)

Mcqs

1. If the n-th term of an arithmetic progression is $5n + 3$, then $3rd$ term of the arithmetic progression is

A. 11

B. 18

C. 12

D. 13

Answer: B

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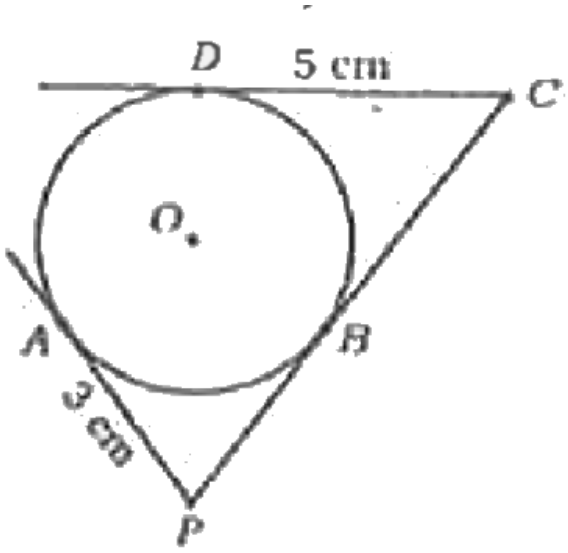
2. In the following figure, PA, PC and CD are tangents drawn to a circle of centre O, If $AP = 3cm, CD = 5cm$, then the length of PC is.



A. 3 cm

B. 5 cm

C. 8 cm

D. 2 cm

Answer: C

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3. If the lines drawn to the linear equations of the type $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ are coincident on each other, then the correct relation among the following is

A. $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$

B. $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$

C. $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$

D. $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} = \frac{c_1}{c_2}$

Answer: A

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4. The distance between the origin and co-ordinates of point (x, y) is

A. $x^2 + y^2$

B. $\sqrt{x^2 - y^2}$

C. $\sqrt{x^2 + y^2}$

D. $x^2 - y^2$

Answer: C

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5. If the HCF of 72 and 120 is 24, then their LCM is

A. 36

B. 720

C. 360

D. 72

Answer: C

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6. The value of $\sin 30^\circ + \cos 60^\circ$ is

A. $\frac{1}{2}$

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

C. $\frac{1}{4}$

D. 1

Answer: D

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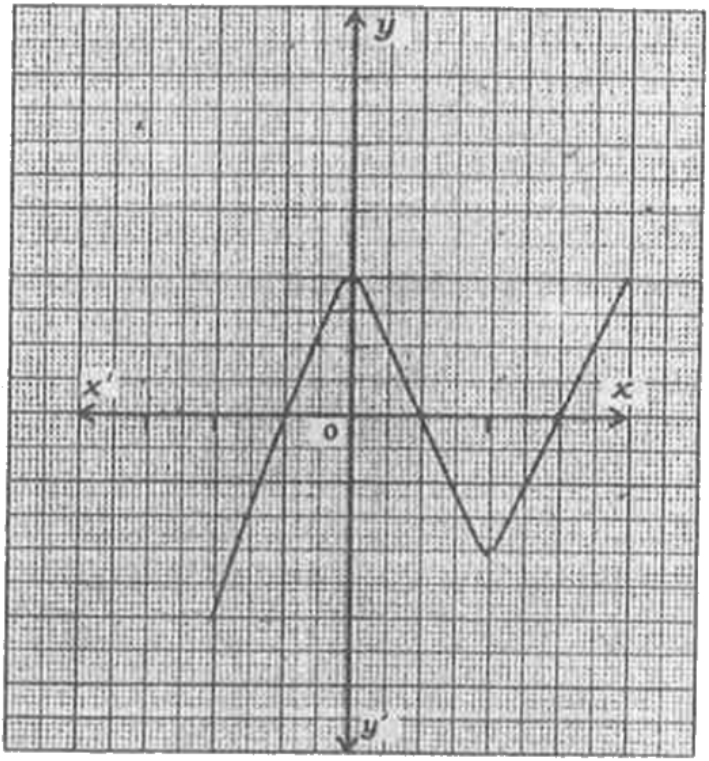
7. In the given graph of $y = P(x)$, the number of zero is



A. 4

B. 3

C. 2

D. 7

Answer: B

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8. Faces of cubical die numbered from 1 to 6 is rolled once. The probability of getting an odd number on the top face is

A. $\frac{3}{6}$

B. $\frac{1}{6}$

C. $\frac{2}{6}$

D. $\frac{4}{6}$

Answer: A

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Exercise

1. Write the formula to find the sum of first n terms of an Arithmetic progression, whose first term is a and the last term is a_n.

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2. If a pair of linear equations represented by lines has no solutions (inconsistent) then write what kinds of lines are these.

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3. Write the formula to find area of a sector of a circle, if angle at the centre is $'\theta'$ degrees.

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4. Write 96 as the product of prime factors.

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5. Find the degree of the polynomial

$P(x) = x^3 + 2x^2 - 5x - 6$

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6. Ina

$\Delta ABC, \angle ABC = 90^\circ$ and $\angle ACB = 30^\circ$

then find $AB : AC$.

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7. Find the solution for the pair of linear equations:

$x + y = 14$

$x - y = 4$

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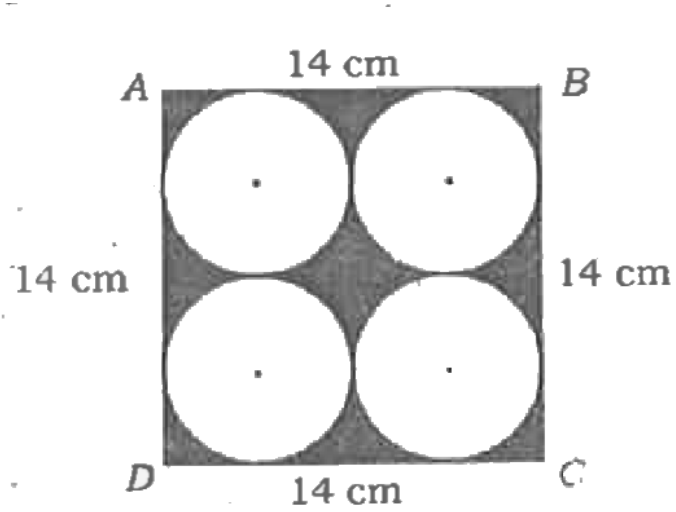
8. ABCD is a square of side 14cm. Four congruent circles are drawn in the square as shown in figure. Calculate the area of the shaded region.

[Circles touch each other externally and also sides of the square]



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9. Find the distance between the points $(2, 3)$ and $(4, 1)$.

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10. Find the area of a triangle whose vertices are $(1, -1), (-4, 6)$ and $(-3, -5)$.

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11. Prove that $5 + \sqrt{3}$ is an irrational number.

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12. $\Delta ABC \sim \Delta DEF$ and their areas are $64cm^2$ and $100cm^2$ respectively. If $EF = 12cm$ then find the measure of BC.

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13. A verticle pole of height 6m casts a shadow 4m long on the ground, and at the same time a tower on the same ground casts a shadow 28m long. Find the height of the tower.

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14. The diagonal BD of parallelogram ABCD intersect AE at F as shown in the figure. If E is any point on BC, then prove that $DF \times EF = FB = FA.$

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15. sum and product of the zeroes of a quadratic polynomial $P(x) = ax^2 + bx - 4 \text{are} \frac{1}{4}$ and -1 respectively. Then find the values of a and b.

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16. Find the quotient and remainder when $p(x) = 2x^2 + 2x + 1$ is divided by $g(x) = x + 2$

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17. Find the value of k, in which one of its zeros is -4 of the polynomial $P(x) = x^2 - x - (2k + 2)$.

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18. Solve the equation $x^2 - 3x - 10 = 0$ by using formula.

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19. If $\cos ec\theta = \frac{13}{12}$ then find the value of $\cos\theta$.

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20. $\tan A . \sin A + \cos A = \sec A$

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21. A box contains 90 discs. Which are numbered from 1 to 90. If one disc is drawn at randow from the box. Find the probability that is bears a perfect square number.

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22. A metallic sphere of radius 9cm is melted and recast into the shape of a cyclinder of radius 6 cm. Find the height of the cyclinder.

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23. The faces of two cubes of volume $64cm^3$ each are joined together to form a cuboid. Find the total surface area fo the cuboid.

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24. Prove that the "Length of tangents drawn from an external point a circle are equal".

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25. Two concentric circle of radii 5 cm and 3cm are drawn. Find the length of the chord of the larger circle which touches the smaller circles.

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26. Find the mode for the following data in the frequency distribution table:

Family size	1–3	3–5	5–7	7–9	9–11
Number of families	7	8	2	2	1

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27. Find the median for the following data in the frequency distribution table:

Weight (in kg)	15–20	20–25	25–30	30–35	35–40
Number of students	2	3	6	4	5

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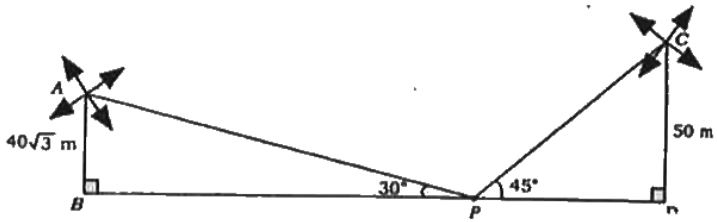
28. Two windmills of height 50m and $40\sqrt{3}m$ are on either side of the field. A person observes the top of the windmills from a point in between them. The angle of elevation was found to be 45° and 30°. Find the distance between the windmills.



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29. The following table gives production yield per hectare of wheat of 100 farms of a village.

Production yield (in kg/ha)	50–55	55–60	60–65	65–70	70–75	75–80
Number of farms	2	8	12	24	38	16

Change the distribution, and draw its ogive

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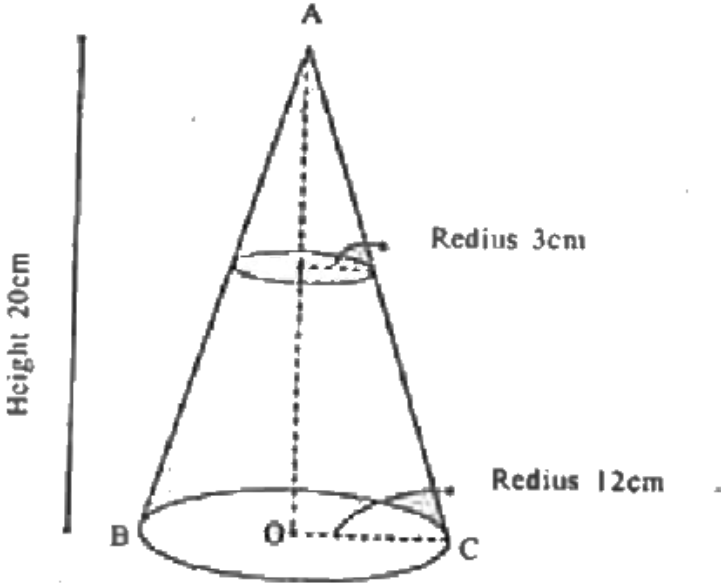
30. A cone is having its base radius 12 cm and height 20 cm. If the top of this cone is cut in to form of a small cone of base radius 3cm is remove, then the remaining part of the solid

cone becomes a frustum. Calculate the volume of the frustum.



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31. A milk tank is in the shape of a cyclinder with hemispheres of same radii attached to both ends of it as shown in figure. If the total height of the tank is 6m and the radius is 1m, calculate the maximum quantity of milk filled in the tank in litres. $\left(\pi = \frac{22}{7}\right)$

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32. The sum of the 4^{th} and 8^{th} terms of an AP is 24 and the sum of the 6^{th} and 10^{th} terms is

44. Find the first three terms of the AP.

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33. Prove that "In a right triangle, the square of the hypotenuse is equal to the sum of squares of the other two sides".

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34. The ages of two students A and B are 19 years and 15 years respectively. Find how many

years it will take so that the product of their ages becomes equal to 480.

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35. If the quadratic equation $(b-c)x_2+(c-a)x+(a-)=0$ has equal roots, then show that $2b=a+c$.

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