

ARMY PUBLIC SCHOOL
AHMEDNAGAR
CLASS IX – TERM 2 (ANNUAL) QUESTION BANK

Q.1 Multiple Choice questions:

A: Polynomials:

- 1) The number of zeros of $x^2 + 4x + 2$
 - (a) 1
 - (b) 2
 - (c) 3
 - (d) none of these

- 2) The polynomial of type $ax^2 + bx + c$, $a = 0$ is of type
(a) linear (b) quadratic (c) cubic (d) Biquadratic

- 3) The value of k , if $(x - 1)$ is a factor of $4x^3 + 3x^2 - 4x + k$, is
(a) 1
(b) 2
(c) -3 (d) 3

- 4) The degree of polynomial $p(x) = x + \sqrt{x^2 + 1}$ is
(a) 0
(b) 2
(c) 1
(d) 3

- 5) If $3 + 5 - 8 = 0$, then the value of $(3)^3 + (5)^3 - (8)^3$ is
(a) 260
(b) -360
(c) -160
(d) 160

- 6) If value of 104×96 is
(a) 9984
(b) 9469
(c) 10234
(d) 11324

- 7) The value of $5.63 \times 5.63 + 11.26 \times 2.37 + 2.37 \times 2.37$ is
(a) 237
(b) 126
(c) 56
(d) 64

- 8) The value of $\frac{(361)^3 + (139)^3}{(361)^2 - 361 \times 139 + (139)^2}$ is
- (a) 300
 - (b) 500
 - (c) 400
 - (d) 600
- 9) If $x + y = 3$, $x^2 + y^2 = 5$ then xy is
- (a) 1
 - (b) 3
 - (c) 2
 - (d) 5
- 10) If $x + 2$ is a factor of $x^3 - 2ax^2 + 16$, then value of a is
- (a) 3
 - (b) 1
 - (c) 4
 - (d) 2
- 11) If one of the factor of $x^2 + x - 20$ is $(x + 5)$. Find the other
- (a) $x - 4$
 - (b) $x + 2$
 - (c) $x + 4$
 - (d) $x - 5$

B: Quadrilateral:

- 1) The angles of quadrilateral are in the ratio 1 : 2 : 3 : 4. The greatest of these angles is :
- A) 120° B) 140° C) 144° D) 108°
- 2) If diagonals of a Parallelogram are equal, then it is a :
- A) Square only B) Rectangle only C) Rhombus only D) both(a) and (b)
- 3) A quadrilateral is a rectangle but not a square when :
- A) it's diagonals do not bisect each other
 - B) it's diagonals are not equal.
 - C) it's diagonals are not perpendicular
 - D) All angles are not equal
- 4) In a rectangle longer side is twice the smaller side, then ratio of longer side to its diagonal is :
- A) 112 : 5 C) 2 : $\sqrt{5}$ DW5 : 2
- 5) If lengths of the diagonals of rhombus are 24cm and 10cm, then length of each side of the rhombus

- A) 13cm B) 10cm C) 12cm D) 5cm
- 6) If greatest angles of a parallelogram is 30° more than twice the smallest angle, then greatest angle of the parallelogram is :
- A) 130° B) 50° C) 100° D) 110°
- 7) The quadrilateral formed by joining the mid points of the sides of quadrilateral PQRS, taken in order, is a rhombus if :
- A) PQRS is a rhombus
- B) PQRS is a parallelogram
- C) diagonals of PQRS are perpendicular
- D) diagonals of PQRS are equal
- 8) Which of the following statement is false:
- A) every square is a rhombus
- B) diagonals of a rhombus are perpendicular to each other
- C) diagonals of rectangle are perpendicular to each other
- D) diagonals of square are perpendicular to each other
- 9) The figure formed by joining the mid points of the sides of a quadrilateral ABCD, taken in order, is a square only if :
- A) ABCD is rhombus
- B) diagonals of ABCD are equal
- C) diagonals of ABCD are equal and Perpendicular
- D) diagonals of ABCD are perpendicular

C: Circle:

1) The center of the circle lies in _____ of the circle.

- Interior
- Exterior
- Circumference
- None of the above

2) The longest chord of the circle is:

- Radius

- b. Arc
- c. Diameter
- d. Segment

3) Equal _____ of the congruent circles subtend equal angles at the centers. a. Segments

- b. Radii
- c. Arcs
- d. Chords

4) If chords AB and CD of congruent circles subtend equal angles at their centres, then:

- a. $AB = CD$
- b. $AB > CD$
- c. $AB < AD$
- d. None of the above

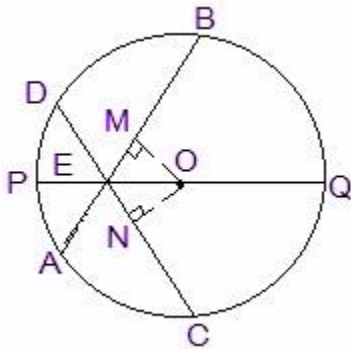
5) If there are two separate circles drawn apart from each other, then the maximum number of common points they have:

- a. 0
- b. 1
- c. 2
- d. 3

6) The angle subtended by the diameter of a semi-circle is:

- a. 90
- b. 45
- c. 180
- d. 60

7) If AB and CD are two chords of a circle intersecting at point E, as per the given figure. Then:



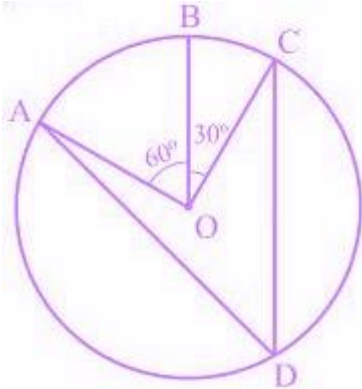
- a. $\angle BEQ > \angle CEQ$
- b. $\angle BEQ = \angle CEQ$

- c. $\angle BEQ < \angle CEQ$
- d. None of the above

8) If a line intersects two concentric circles with centre O at A, B, C and D, then:

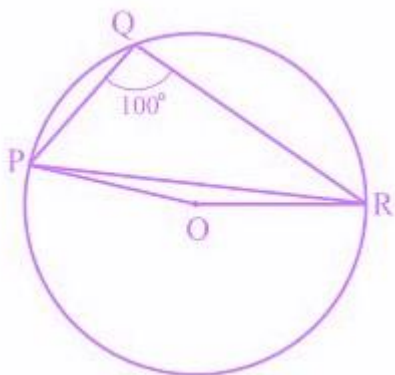
- a. $AB = CD$
- b. $AB > CD$
- c. $AB < CD$
- d. None of the above

9) In the below figure, the value of $\angle ADC$ is:



- a. 60°
- b. 30°
- c. 45°
- d. 55°

10) In the given figure, find angle OPR.



- a. 20°
- b. 15°
- c. 12°
- d. 10°

D: Probability:

- 1) When we toss a coin find the probability of getting head?
 - (i) 1
 - (ii) $\frac{1}{2}$
 - (iii) $\frac{1}{3}$
 - (iv) 0
- 2) When we throw a dice find the probability of getting 6 on its upper face.
 - (i) 0
 - (ii) 1
 - (iii) $\frac{1}{6}$ (iv) $\frac{1}{2}$
- 3) From a well shuffled deck of 52 playing cards, one card is drawn at random, find the probability of getting an ace card.
 - (i) $\frac{1}{52}$
 - (ii) $\frac{1}{26}$
 - (iii) 1
 - (iv) $\frac{1}{13}$
- 4) The probability of an event can never be
 - (i) 0
 - (ii) 1
 - (iii) 2
 - (iv) 0.5
- 5) The probability of a sure event is
 - (i) 0
 - (ii) 1
 - (iii) 2
 - (iv) 0.5

E: Surface Area & Volume:

1. If the radius of cylinder is halved and height is doubled, then what will be the curved surface area?

- (a) increase by 1
- (b) the same
- (c) double
- (d) triple

2. What is the total surface area of a cone having radius $\frac{r}{2}$ and height 21?

- (a) $\pi r \left(1 + \frac{r}{4}\right)$ (b) $\pi r \left(r + \frac{1}{4}\right)$ (c) $\pi r \left(1 + \frac{r}{2}\right)$ (d) $\pi r \left(4 + \frac{1}{2}\right)$

3. If a right circular cone has radius 4 cm and slant height 5 cm then what is its volume?

- (a) $16\pi \text{ cm}^3$
- (b) $14\pi \text{ cm}^3$

(c) $12\pi \text{ cm}^3$

(d) $18\pi \text{ cm}^3$

4. The radius of a hemisphere is r . What is its volume?

(a) $\frac{4}{3}\pi r^3$

(b) $\frac{2}{3}\pi r^3$

(c) $4\pi r^3$

(d) $2\pi r^3$

5. What is the total surface area of a hemisphere of radius r ?

(a) $4\pi r^2$

(b) πr^2

(c) $2\pi r^2$

(d) $3\pi r^2$

6. If the radius of a sphere is doubled, then what is the ratio of their surface area?

(a) 1 : 2

(b) 2 : 1

(c) 1 : 4

(d) 4 : 1

7. Two right circular cones of equal curved surface areas have slant heights in the ratio of 3 : 5. Find the ratio of their radii.

(a) 4 : 1

(b) 3 : 5

(c) 5 : 3

(d) 4 : 5

8. In the cylindrical container, the base radius is 8 cm. If the height of the water level is 20 cm, find the volume of the water in the container.

(a) 5.6721 l

(b) 4.0218 l

(c) 3.8925 l

(d) 4.97 l

9. A well with 10 m inside diameter is dug 14m deep. Earth taken out of it is spread all around it to make an embankment of height $4\frac{2}{3}$ m. Find the width of the embankment.

(a) 5

(b) 4 m

(c) 4.3 m

(d) 6 m

10) The formula to find surface area of a cuboid of length (l), breadth (b) and height (h) is:

a. $lb+bh+hl$

b. $2(lb+bh+hl)$

c. $2(lbh)$

d. $lbh/2$

11) The surface area of a cube whose edge equals to 3cm is:

a. 62 sq.cm

- b. 30 sq.cm
- c. 54 sq.cm
- d. 90 sq.cm

12) The surface area of cuboid-shaped box having length=80 cm, breadth=40cm and height=20cm is: a. 11200 sq.cm

- b. 13000 sq.cm
- c. 13400 sq.cm
- d. 12000 sq.cm

.

13) The volume of hemisphere whose radius is r , is:

- a. $\frac{4}{3} \pi r^3$
- b. $4\pi r^3$
- c. $2\pi r^3$
- d. $\frac{2}{3} \pi r^3$

14) If the radius of a cylinder is 4cm and height is 10cm, then total surface area of cylinder is:

- a. 440 sq.cm
- b. 352 sq.cm.
- c. 400 sq.cm
- d. 412 sq.cm

15) The curved surface area of a right circular cylinder of height 14 cm is 88 cm^2 . The diameter of the base is: a. 2 cm

- b. 3cm
- c. 4cm
- d. 6cm

16) The Curved surface area of a right circular cylinder is 4.4 sq.cm . The radius of the base is 0.7 cm. The height of cylinder will be:

- a. 2 cm
- b. 3 cm
- c. 1 cm
- d. 1.5 cm

17) Diameter of the base of a cone is 10.5 cm and its slant height is 10 cm. The curved surface area is: a. 150 sq.cm

b. 165 sq.cm

c. 177 sq.cm

d. 180 sq.cm

18) If slant height of the cone is 21cm and diameter of base is 24 cm. The total surface area of cone is:

a. 1200.77 sq.cm

b. 1177 sq.cm

c. 1222.77 sq.cm

d. 1244.57 sq.cm

19) The surface area of a sphere of radius 14 cm is:

a. 1386 sq.cm

b. 1400 sq.cm

c. 2464 sq.cm

d. 2000 sq.cm

20). A shuttlecock used for playing badminton has the shape of the combination of

(a) a cylinder and a sphere

(b) a sphere and a cone

(c) a cylinder and a hemisphere

(d) frustum of a cone and a hemisphere

Q.2 Short Answer questions:

A: Polynomials:

1. If $x + y = 12$ and $xy = 32$, Find the value of $x^2 + y^2$.

2. If $3x + 2y = 12$ and $xy = 6$, find the value of $9x^2 + 4y^2$.

3. Write the following cubes in the expanded form:

(i) $(3a + 4b)^3$

(ii) $(5p - 3q)^3$

4. If $a + b + c = 15$ and $a^2 + b^2 + c^2 = 83$, find the value of $a^3 + b^3 + c^3 - 3abc$.

5. Factorize:

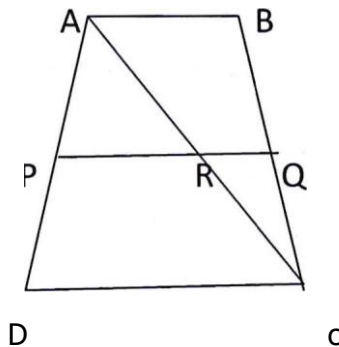
(i) $6ab - b^2 + 12ac - 2bc$

(ii) $9(2a - b)^2 - 4(2a - b) - 13$

6. If $x^3 + ax^2 - bx + 10$ is divisible by $x^2 - 3x + 2$, find the values of a and b.

B: Quadrilateral:

1) ABCD is trapezium in which $AB \parallel CD$. P and Q are the mid points of AD and BC respectively such that $PQ \parallel CD$. If $AB = 8\text{cm}$ and $CD = 10\text{cm}$ find the length of PQ.



2) If the diagonals of a parallelogram are equal, then show that it is a rectangle.

3) ABCD is a rhombus. show that diagonals AC bisects Angle A as well as Angle C and diagonals BD bisects Angle B as well as Angle D.

4) ABCD is rectangle in which diagonals AC bisects Angle A as well as Angle C. show that:

1) ABCD is a square.

2) Diagonal BD bisects Angle B as well as Angle D.

5) ABCD is a rhombus and P, Q, R and S are mid points of the sides AB, BC, CD and DA respectively. Show that the quadrilateral PQRS is a rectangle.

C: Circle:

1. If arcs AXB and CYD of a circle are congruent, find the ratio of AB and CD.

2. If the perpendicular bisector of a chord AB of a circle PXAQBY intersects the circle at P and Q, prove that arc PXA \angle Arc PYB. Solution:

3. A, B and C are three points on a circle. Prove that the perpendicular bisectors of AB, BC and CA are concurrent.

4. AB and AC are two equal chords of a circle. Prove that the bisector of the angle BAC passes through the centre of the circle.

5. If a line segment joining mid-points of two chords of a circle passes through the centre of the circle, prove that the two chords are parallel.
6. ABCD is such a quadrilateral that A is the centre of the circle passing through B, C and D. Prove that $\angle CBD + \angle CDB = \frac{1}{2} \angle BAD$
7. O is the circumcentre of the triangle ABC and D is the mid-point of the base BC. Prove that $\angle BOD = \angle A$.
8. On a common hypotenuse AB, two right triangles ACB and ADB are situated on opposite sides. Prove that $\angle BAC = \angle BDC$.
9. Two chords AB and AC of a circle subtends angles equal to 90° and 150° , respectively at the centre. Find $\angle BAC$, if AB and AC lie on the opposite sides of the centre.
10. If BM and CN are the perpendiculars drawn on the sides AC and AB of the triangle ABC, prove that the points B, C, M and N are concyclic.

D: Construction:

1. Construct an angle of 90° at the initial point of the given ray.
2. Draw a line segment $PQ = 8.4$ cm. Divide PQ into four equal parts using ruler and compass.
3. Draw any reflex angle. Bisect it using compass. Name the angles so obtained.
4. Why we cannot construct a ΔABC , if $\angle A = 60^\circ$, $AB = 6$ cm, $AC + BC = 5$ cm but construction of A ABC is possible if $\angle A = 60^\circ$, $AB = 6$ cm and $AC - BC = 5$ cm.
5. Construct angle of 15° , 30° , 45° , 60° , 75° , 90° , 105° , and 120° using compass only.

E: Probability:

- 1) A coin is tossed 500 times and we get Heads : 285 times and tails : 215 times .
When a coin is tossed at random , what is the probability of getting (i) a head? (ii) a tail
- 2) In a survey of 200 ladies , it was found that 142 like coffee , 58 dislike it.
Find the probability that a lady chosen at random
(i) Likes coffee , (ii) dislikes coffee
- 3) In a cricket match, a batsman hits a boundary 6 times out of 30 balls he plays .
Find the probability that he did not hit a boundary.
- 4) A bag contains 5 red, 8 black , and 7 white balls . one ball is chosen at random .
What is the probability that the chosen ball is black ?

- 5) It is known that a box of 800 electric bulbs contains 36 defective bulbs. One bulb is taken at random out of the box. What is the probability that the chosen bulb is non defective .

F: Surface Area & Volume:

1. How much ice-cream can be put into a cone with base radius 3.5 cm and height 12 cm ?
2. The total surface area of a cube is 726 cm^2 . Find the length of its edge.
3. If a wooden box of dimensions 8 m x 7 m x 6 m is to carry boxes of dimensions 8 cm x 7 cm x 6 cm, then find the maximum number of boxes that can be carried in the wooden box.
4. Two cubes of edge 6 cm are joined to form a cuboid. Find the total surface area of the cuboid.
5. Calculate the edge of the cube if its volume is 1331 cm^3

Q.3 Long Answer questions:

A: Polynomials:

1. Give an example of a monomial and a binomial having degrees as 82 and 99 respectively.
2. Compute the value of $9x^2 + 4y^2$ if $xy = 6$ and $3x + 2y = 12$.
3. Find the value of the polynomial $5x - 4x^2 + 3$ at $x = 2$ and $x = -1$
4. Calculate the perimeter of a rectangle whose area is $25x^2 - 35x + 12$.
5. Find the value of $x^3 + y^3 + z^3 - 3xyz$ if $x^2 + y^2 + z^2 = 83$ and $x + y + z = 15$

B: Quadrilateral:

- 1) Show that diagonals of a square are equal and bisect each other at right angles.
- 2) ABCD is a rhombus. PABQ is a straight line such that $PA = PB = BQ$. Prove that PD and QC when produced meet at right angle.
- 3) In a parallelogram ABCD , K is the mid point of side CD and DM is drawn parallel to BK , which meets CB produced at M and cut side AB at L. Prove that
 - a) $AD = \frac{1}{2} CM$
 - b) $DM = 2BK$

4. The side AC of a triangle ABC is produced to point E such that

$CE = \frac{1}{2} AC$. D is the mid point of BC and ED produced meet AB at F. If $AB \parallel PD \parallel CR$. Prove that

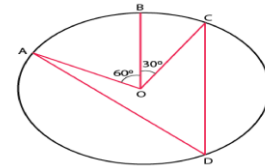
a) $3DF = EF$

b) $4CR = AB$

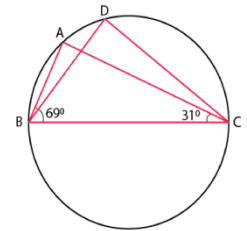
C: Circle:

- Recall that two circles are congruent if they have the same radii. Prove that equal chords of congruent circles subtend equal angles at their centres.
- Two circles of radii 5 cm and 3 cm intersect at two points and the distance between their centres is 4 cm. Find the length of the common chord.
- If two equal chords of a circle intersect within the circle, prove that the segments of one chord are equal to corresponding segments of the other chord.
- If a line intersects two concentric circles (circles with the same centre) with centre O at A, B, C and D, prove that $AB = CD$
- Three girls Reshma, Salma and Mandip are playing a game by standing on a circle of radius 5m drawn in a park. Reshma throws a ball to Salma, Salma to Mandip, Mandip to Reshma. If the distance between Reshma and Salma and between Salma and Mandip is 6m each, what is the distance between Reshma and Mandip?

- In Fig. 10.36, A, B and C are three points on a circle with centre O such that $\angle BOC = 30^\circ$ and $\angle AOB = 60^\circ$. If D is a point on the circle other than the arc ABC, find $\angle ADC$.



- A chord of a circle is equal to the radius of the circle. Find the angle subtended by the chord at a point on the minor arc and also at a point on the major arc.



- In Figure, $\angle ABC = 69^\circ$, $\angle ACB = 31^\circ$, find $\angle BDC$.
- Prove that a cyclic parallelogram is a rectangle.
- Let the vertex of an angle ABC be located outside a circle and let the sides of the angle intersect equal chords AD and CE with the circle. Prove that $\angle ABC$ is equal to half the difference of the angles subtended by the chords AC and DE at the centre.
- ABCD is a parallelogram. The circle through A, B and C intersect CD (produced if necessary) at E. Prove that $AE = AD$.
- AC and BD are chords of a circle which bisect each other. Prove that (i) AC and BD are diameters; (ii) ABCD is a rectangle.

D: Construction:

1. Construct an equilateral triangle LMN, one of whose side is 5 cm. Bisect $\angle M$ of the triangle.
2. Construct a triangle ABC with $BC = 8$ cm, $\angle B = 45^\circ$ and $AB - AC = 3.1$ cm.
3. Construct an isosceles triangle whose two equal sides measure 6 cm each and whose base is 5 cm. Draw the perpendicular bisector of its base and show that it passes through the opposite vertex.
4. Construct a right triangle whose base is 8 cm and sum of the hypotenuse and other side is 16 cm.

E: Surface Area & Volume:

Q.1: Hameed has built a cubical water tank with lid for his house, with each outer edge 1.5 m long. He gets the outer surface of the tank excluding the base, covered with square tiles of side 25 cm (see Fig. 13.5). Find how much he would spend for the tiles, if the cost of the tiles is Rs.360 per dozen.

Q.2: The paint in a certain container is sufficient to paint an area equal to 9.375 sq.m. How many bricks of dimensions 22.5 cm \times 10 cm \times 7.5 cm can be painted out of this container?

Q.3: The length, breadth and height of a room are 5 m, 4 m and 3 m respectively. Find the cost of whitewashing the walls of the room and the ceiling at the rate of Rs.7.50 per sq.m.

Q.4: The curved surface area of a right circular cylinder of height 14 cm is 88 cm. sq. Find the diameter of the base of the cylinder.

Q.5: Curved surface area of a right circular cylinder is 4.4 sq.m. If the radius of the base of the cylinder is 0.7 m, find its height.

Q.6: In a hot water heating system, there is a cylindrical pipe of length 28 m and diameter 5 cm. Find the total radiating surface in the system.

Q.7: The height of a cone is 16 cm and its base radius is 12 cm. Find the curved surface area and the total surface area of the cone.

Q.8: Find the total surface area of a cone, if its slant height is 21 m and diameter of its base is 24 m.

Q.4 Case Study based questions:

- 1) In RPS Public School there are 7 societies. The societies work in different fields such as Web Development , AutoCAD , Sports, etc . There are different number of students in all the 7 societies . The number of students in Society 1 is given by the polynomial:

$$\frac{x^2}{4}$$

, where x represents total number of students in the Classes X and XII. Based on the above information answer the below questions -

Q (1): The polynomial which is given in the above passage is of degree -

- (a) 1 (b) 2
(c) 3 (d) 4

Q (2): The coefficient of x in the polynomial which is given in the above passage is

- (a) 0 (b) 1
(c) 2 (d) 3

Q (3): The zeroes of the polynomial which is given in the above passage is -

- (a) 1 , 1 (b) 2 ,1 (c) 0 , 0 (d) 1 ,0

Q (4): The polynomial given in the above passage is –

- (a) Linear Polynomial (b) Quadratic Polynomial
(c) Cubic Polynomial (d) None of these

2) Rohan is playing in a park .The park in which he is playing is of square shape. After jogging he felt tired so he sat on a wooden plank which is of cuboid shape. The side of park is x metre and the length, breadth and height of wooden plank are b metre, b metre, b metre respectively. Based on the above information answer the below questions –

Q (1): The numbers of variables involved in the polynomial that is used to find the volume of wooden plank are –

- (a) 1 (b) 2 (c) 3 (d) 4

Q (2): Polynomial used for finding the volume of wooden plank is a –

- (a) Linear Polynomial (b) Quadratic Polynomial (c) Cubic Polynomial (d) None of these

3) Chess is a recreational and competitive board game played between two players. It is sometimes called Western or international chess to distinguish it from related games such as xiangqi. In order to increase thinking capacity many of the schools are trying to encourage children to play the chess game.

Q (1): What is the shape of chess board?

- (a) Rectangle (b) Square (c) Trapezium (d) Rhombus

Q (2): What is the perimeter of the chess board if one side is 32 cm?

- (a) 128 cm (b) 1024 cm (c) 45.25 cm (d) 40 cm

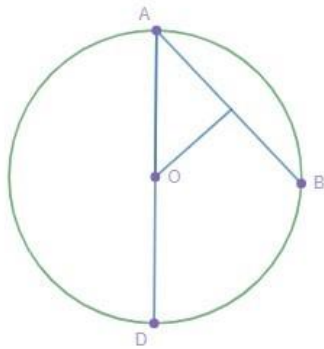
Q (3): What is the length of diagonal of chess board if one side is 32 cm?

- (a) 128 cm (b) 1024 cm (c) 45.25 cm (d) 400 cm

Q (4): What will be the rotational symmetry of the chess board?

- (a) 1 (b) 2 (c) 3 (d) 4

- 4) Abeer, Dhanush, bobby are three friends standing on Boundary of a circular park such that, David and Abdul are standing front of each other having largest distance possible between them, distance between them is 10 m . Abdul and Bobby are having 6 m distance between them .



Q (1): diameter of park will be

- (a) 10 m (b) 17 m (c) 5 m (d) 7 m

Q (2): If Abeer and Bobby are holding 2 ends of a rod then the distance of the rod from center of the park is

- (a) 8 m (b) 7 m
(c) 4 m (d) 16m

Q (3): what will be the radius of the park

- (a) 10 m (b) 17 m (c) 5 m (d) 7 m

Q (4): what is the distance of Bobby from center of the park

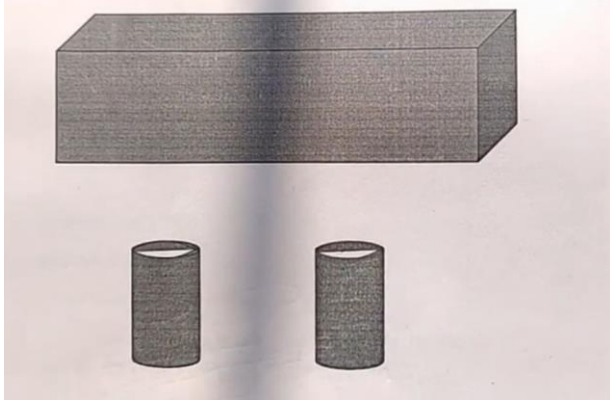
- (a) 10 m (b) 17 m
(c) 5 m (d) 7 m

Q (5): what is the distance of Dhanush from center of the park

- (a) 10 m (b) 17 m (c) 5 m (d) 7 m

5) In the centre of the garden a beautiful structure is placed to attract the people. The shape of the structure is given below which has cuboid standing on the two cylindrical beams. The dimensions of cuboid are 1 m, 2 m and 0.5 m. The radius of the cylinder is 0.35 m and height of cylinder is 1 m.

$$\pi = \frac{22}{7}$$



Q (1): As the structure is made from concrete, how much concrete is required for the cuboidal shape?

- (a) 1 cu m (b) 2 cu m (c) 3 cu m (d) 4 cu m

Q (2): What is the formula used for the total surface area of cylinder?

- (a) $2r$ (b) $2\pi r(r + h)$
(c) $3r$ (d) $4r$

Q (3): If the top of the cuboid is to be painted blue, how much area needs to be painted?

- (a) 6 sq m (b) 1 sq m
(c) 2 sq m (d) 3 sq m

Q (4): If the cost of painting is Rs. 1500 per sq m, find the total cost of painting the top of cuboid.

- (a) Rs. 500 (b) Rs. 5000 (c) Rs. 3000 (d) Rs. 100

Q (5): If cloth is needed to cover both the curved cylindrical part, how much cloth is needed?

- (a) 5 cu m (b) 4.4 sq m
(c) 41 sq m (d) 44 sq m

6) Humayun's Tomb is an early example of Mughal architecture built in Delhi. It is set in the centre of a garden in the classical Moghal char bagh pattern. A high wall surrounds the garden on three sides. The garden is divided into four parts by two bisecting water channels with paved walkways (khiyabans), which terminate at two gates.

Q (1): To clean the minaret top, a ladder was built. If the height of the minaret is 5 m and the ladder needs to be placed at a distance of 12 m from the base, how long should the ladder be?

- (a) 12 m (b) 13 m (c) 14 m (d) 15 m

Q (2): The surface area of the small hemispherical dome (without base) is found to be 7700 sq m. Find its diameter.

- (a) 70 m (b) 71 m
 (c) 72 m (d) 73 m

Q (3): The two small domes will be congruent if they have ____.

- (a) Different height (b) Same radii
 (c) Different radii (d) Can't say

Q (4): If the radius of the cylindrical portion of pillar is 0.14 meter up to a height of 7 m, then its volume is ____.

- (a) 0.4312 cu m (b) 3 cu m (c) 4 cu m (d) 5 cu m

7) A recent survey was conducted by Govt. of India to find the age of workers in a factory all over India to form a better and more efficient policy for the workers which can help them financially.

Age (in years)	20-29	30-39	40-49	50-59	60 and above
Number of Workers	38	27	86	46	3

- If a person is selected at random, then find the probability that the person is having age from 30-39
- If a person is selected at random, then find the probability that the person is under 40 years
- If a person is selected at random, then find the probability that the person is 40 years or more
- If a person is selected at random, then find the probability that the person is under 29 years

5. If a person is selected at random, then find the probability that the person is 60 and above

8) In the above image, the life of 32 batteries was recorded by a MNC to compare the various batteries life (in years) after getting complaints that their batteries have short lives and gets discharged before the warranty

2.8	3.0	3.7	3.2	2.9	4.1	3.5	4.5
3.5	2.8	3.2	3.4	3.8	3.2	4.6	3.7
2.7	4.4	3.4	3.3	2.9	3.0	4.3	3.5
3.5	3.2	3.9	3.2	3.2	3.1	3.7	3.4

1. Find the probability that the life of a battery randomly select is less than or equal to 3 years.
2. If the company gives the warranty of a battery which is less than 4 years, then what is the probability of getting no complaints under the warranty period?
3. As per the given data, if the company gives a warranty of less than or equal to 2 years, then summit decides to purchase the battery. What his decision shows of getting no complaints under the warranty period?
4. Find the probability that the life of a battery randomly selected is less than or equal to 3.5 years.
5. Find the probability that the life of a battery randomly select is less than 3 years