

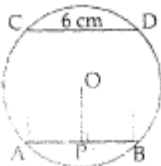
General Instructions:

1. All questions are compulsory.
2. The question paper consists of 31 questions divided into five sections A, B, C, D and E. Section – A comprises of 4 questions of 1 mark each, Section – B comprises of 6 questions of 2 marks each, Section – C comprises of 8 questions of 3 marks each and Section – D comprises of 10 questions of 4 marks each. Section – E comprises of two questions of 3 marks each and 1 question of 4 marks from Open Text Theme.
3. There is no overall choice.
4. Use of calculator is not permitted.

SECTION – A

Question numbers 1 to 4 carry one mark each.

1. How many solution(s) the equation $x = -1$ has, if it is treated as an equation in two variables?
2. Write the linear equation representing a line which is parallel to y – axis and is at a distance of 2 units on the positive side of x – axis.
3. In the figure, AB and CD are two chords equidistant from the centre O. OP is the perpendicular drawn from centre O to AB. If $CD = 6$ cm, find PB.



4. Calculate the surface area of a hemispherical dome of a temple with radius 14 m to be white washed from outside.

SECTION – B

Question numbers 5 to 10 carry two marks each.

5. ABCD is a rectangle and BD is one of its diagonals. If $\text{ar}(\Delta ABD) = 8 \text{ cm}^2$, find $\text{ar}(\Delta BCD)$.
6. Draw any obtuse angle. Bisect it using compass.

7. In the figure, BE and CF are medians of $\triangle ABC$. If $AB = 6$ cm, $BC = 8$ cm and $AC = 4$ cm, find the length of EF.



8. Calculate the height of a cone whose slant height is 25 cm and curved surface area is 550 cm^2 .
9. Following is the data about the months of birth of 40 students in Class IX:
Feb, Jan, July, June, March, Feb, Feb, Feb, Nov, Jan, Jan, Dec, May, June, June, July, June, Nov, Dec, June, July, June, August, Dec, June, March, July, July, June, Dec, Sep, March, Jan, Dec, June, Dec, Sep, March, Jan, Nov.
- One student is chosen at random. Find the probability that the student chosen:
- a. Was born in the month of June.
10. 1850 families with 2 children were selected randomly and the following data were recorded:

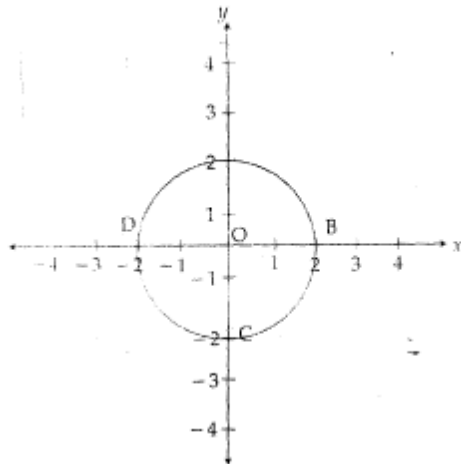
Number of girls in a family	0	1	2
Number of families	511	814	575

- If a family is chosen at random, compute the probability that it has
- a. Exactly 1 girl.
- b. Exactly 2 boys.

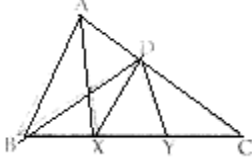
SECTION – C

Question numbers 11 to 18 carry three marks each.

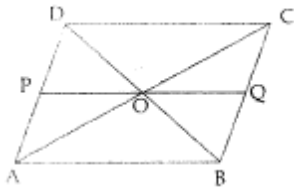
11. A circle with centre O and radius r is drawn. Write the coordinates of points where it meets the axes. Also write the equation AC and BD, find its radius also.



12. Express y in terms of x for the equation $3x - 4y + 7 = 0$. Check whether the points $(-3, 4)$ and $(0, \frac{7}{4})$ lie on the graph of this equation or not.
13. In the given figure, the points X and Y trisect the base BC of ΔABC . A line XD is drawn parallel to BA to intersect AC at D . Prove that $\text{ar}(\Delta BDY) = \text{ar}(\Delta XYDA)$.



14. Prove that equal chords of a circle subtend equal angles at the centre.
15. Draw an angle of 90° using protractor. Now using ruler and compass, construct angles of 45° and $22\frac{1}{2}^\circ$
16. $ABCD$ is a parallelogram whose diagonals intersect each other at O . Through O , line segment PQ is drawn as shown in the figure. Show that $OP = OQ$.

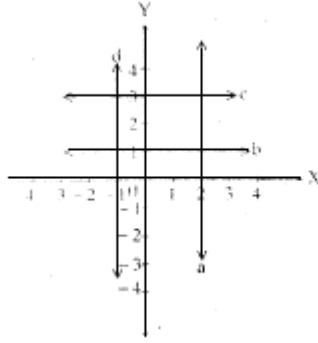


17. Draw a linear pair of angles. Construct angle bisectors of the angles. What type of angle is formed by the bisecting rays?
18. Find the mass of 200 steel spherical balls of radius 0.7 cm, when density of steel is 7.95 g/cm^3 .

SECTION – D

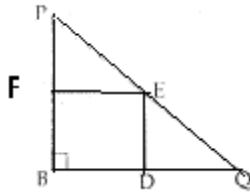
Question numbers 19 to 28 carry four marks each.

19. Aamir scored 40 marks in a test, getting 3 marks for each right answer and losing 1 mark for each wrong answer. If number of questions attempted right by him is x and that attempted incorrectly is y , then write the linear equation which satisfies this data. Also draw the graph for the same.
20. Write the equations of the lines drawn in following graph:

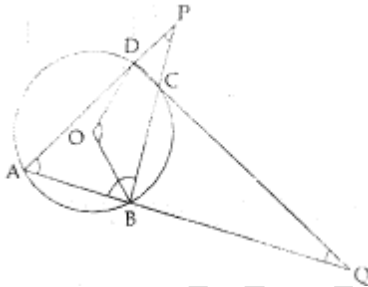


Also, find the area enclosed between the lines.

21. BDEF is a square inscribed in an isosceles right triangle PBQ right angled at B. If $PF = ED$, find the ratio of $\text{ar}(\text{BDEF})$ to $\text{ar}(\text{EDQ})$.



22. In the given figure, $\angle A = 70^\circ$, $\angle ABC = 80^\circ$ and O is the centre of the circle. Find $\angle DPC$, $\angle BQC$ and $\angle BOD$.



23. Construct a right triangle whose base is 12 cm and sum of its hypotenuse and other side is 18 cm.
24. Show that the quadrilateral formed by joining the mid – points of the consecutive sides of a square is also a square.
25. A conical heap is formed when a farmer pours food grains on the ground. The slant height of heap is 35 cm. The circumference of the base is 132 cm. What amount of tarpaulin is needed to cover the grains? Farmer goes to the orphanage and gives half of the food grains for the children living there. How many grains farmer denoted? List values you learn from this act of the farmer.
26. The volumes of the two spheres are in the ratio 64 : 343. Find the ratio of their surface areas.
27. Curved surface area of cylindrical reservoir 12 m deep is plastered from inside with concrete mixture at the rate of Rs. 15 per m^2 . If the total payment made is of Rs. 5652, then find the capacity of this reservoir in litres.

28. The length of 40 leaves of a plant are measured in millimetres and represented in the table below:

Length (in mm)	Number of leaves
118 – 126	12
127 – 135	7
136 – 144	5
145 – 153	14
154 – 162	2

One leaf is plucked at random. Find the probability that the leaf plucked was of length:

- More than 126 mm and less than 136 mm.
- Less than 126 mm.
- Less than 154 mm.

SECTION – E

Open Text

Theme: Atithidevo Bhavah

29. Refer to Table – 2 and answer the following questions:

- What is the difference in FTAs from Europe and America for the year 2011?
- What is the difference in FTAs from Asia and Africa for the year 2011?
- FTA from which two continents was same in 2011?

30. Refer to Table – 3 and answer the following questions:

- What was the percentage of children (age group 0 – 15) in FTAs in India during 1996 – 2012?
- What was the percentage of senior citizens (age group 65 and above) in FTAs in India during 1996 – 2012?
- What was the percentage of elderly (age group 55 and above) in FTAs in India during 1996 – 2012?

31. (a) Many foreign tourists from different parts of world come in India. What is usually their purpose of visit? State four such purposes.

- Calculate the increase in percentage of foreign tourist arrival in each region in 2012 on the basis of 2011.