Board Paper of Class 10 Maths (Basic) Term-II 2022 Delhi(Set 1)

Total Time: 120

Total Marks: 40.0

Section A

Q.No.1: Find the nature of the roots of the quadratic equation : $4x^2 - 5x - 1 = 0$ **Marks:[2.00]**

Q.No.2: Which term of the A.P. 3, 8, 13, 18, ... is 78 ?

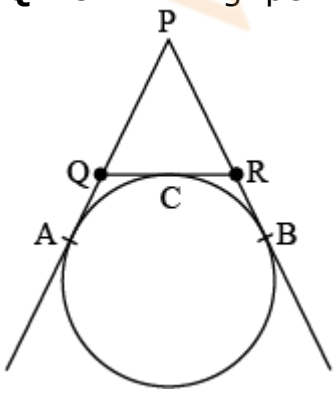
OR

Find the common difference of an A.P. whose nth term is given by $a_n = 6n - 5$.

Marks:[2.00]

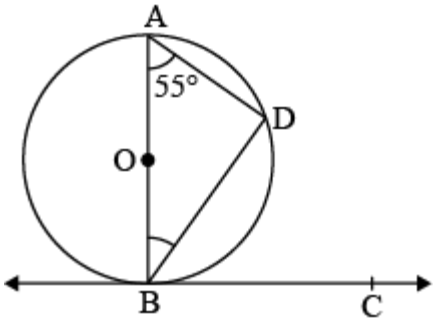
Q.No.3: 3 Cubes each of 8 cm edge are joined end to end. Find the total surface area of the cuboid so formed. **Marks:[2.00]**

Q.No.4: In Fig. perimeter of ΔPQR is 20 cm. Find the length of tangent PA.



OR

In Fig., BC is tangent to the circle at point B of circle centered at O. BD is a chord of the circle so that ∠BAD = 55º. Find m∠DBC.



Marks:[2.00]

Q.No.5: Find the mode of the following frequency distribution :

Class :	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70
Frequency :	25	30	45	42	35

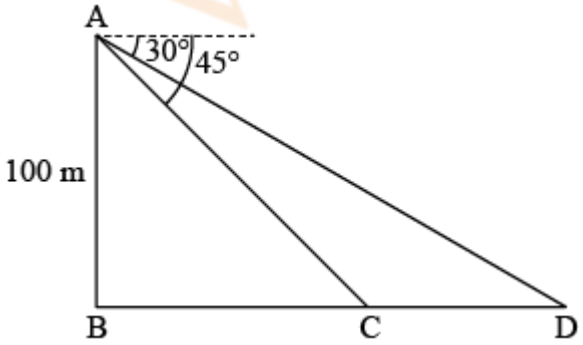
Marks:[2.00]

Q.No.6: Find the sum of the first fifteen multiples of 8. **Marks:[2.00]**

Section B

Q.No.7: Draw a circle of radius 2.5 cm. Construct a pair of tangents from a point P at a distance of 6 cm from the centre of the circle. **Marks:[3.00]**

Q.No.8: As observed from the top of a light house 100 m above sea level, the angle of depression of a ship, sailing directly towards it, changes from 30° to 45°. Determine the distance travelled by the ship during this time.
$\left(\text{Use } \sqrt{3} = 1.73\right)$



OR

At a point on level ground, the angle of elevation of a vertical tower is, found to be α such that $\tan\ \alpha = \frac{1}{3}$. After walking 100 m towards the tower, the angle of

elevation β becomes such that $\tan\ \beta = \frac{3}{4}$. Find the height of the tower.

Marks:[3.00]

Q.No.9: Find the mean of the following frequency distribution :

Class :	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35
Frequency :	4	10	5	6	5

Marks:[3.00]

Q.No.10: The median of following frequency distribution is 25. Find the value of *x*.

Class:	0-10	10-20	20-30	30-40	40-50
Frequency:	6	9	10	8	*x*

Marks:[3.00]

Section C

Q.No.11: Prove that a parallelogram circumscribing a circle is a rhombus.

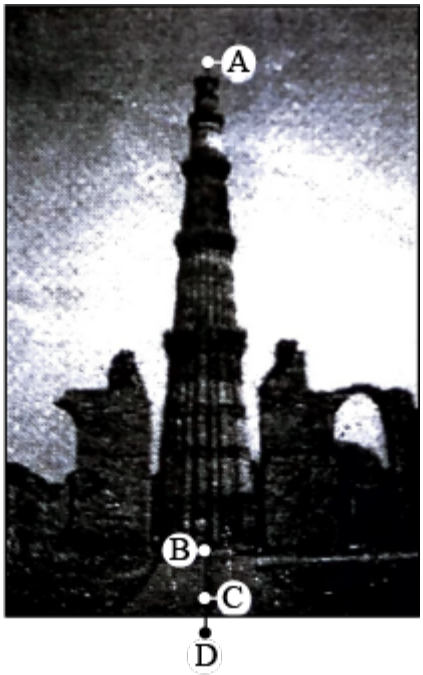
OR

Prove that the perpendicular at the point of contact to the tangent to a circle passes through the centre of the circle. **Marks:[4.00]**

Q.No.12: The sum of the ages of a boy and his sister (in years) is 25 and product of their ages is 150. Find their present ages. **Marks:[4.00]**

Q.No.13: Case Study – 1

Qutub Minar, located in South Delhi, India, was built in the year 1193. It is 72 m high tower. Working on a school project, Charu and Daljeet visited the monument. They used trigonometry to find their distance from the tower. Observe the picture given below. Points C and D represent their positions on the ground in line with the base of tower, the angles of elevation of top of the tower (Point A) are 60° and 45° from points C and D respectively.



(1) Based on above information, draw a well-labelled diagram.

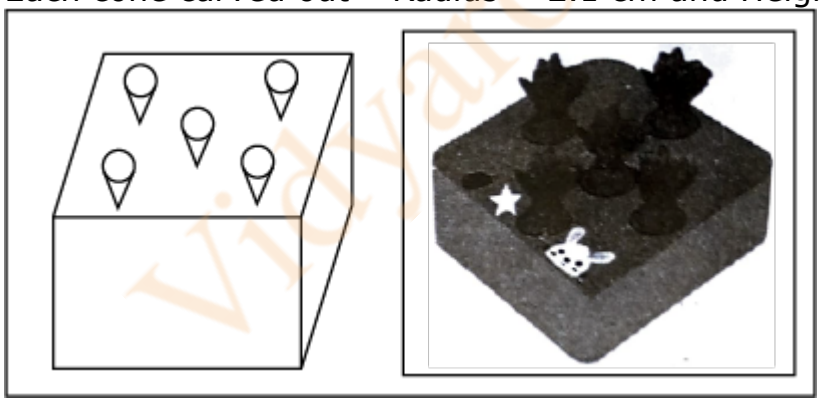
(2) Find the distances CD, BC and BD. $\left(\text{use } \sqrt{3} = 1.73\right)$ **Marks:[4.00]**

Q.No.14: Case Study – 2

A solid cuboidal toy is made of wood. It has five cone shaped cavities to hold toy carrots.

The dimensions of the toy are cuboid –10 cm × 10 cm × 8 cm.

Each cone carved out – Radius = 2.1 cm and Height = 6 cm.



(1) Find the volume of wood carved out to make five conical cavities.

(2) Find the volume of the wood in the final product. **Marks:[4.00]**