



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

**Total Time: 120**

**Total Marks: 40.0**

### Section A

**Q.No.1:** Solve the quadratic equation:  $x^2 + 2\sqrt{2}x - 6 = 0$  for  $x$ . **Marks:[2.00]**

**Q.No.2:** Which term of the A.P.  $-\frac{11}{2}, -3, -\frac{1}{2}, \dots$  is  $\frac{49}{2}$ ?

**OR**

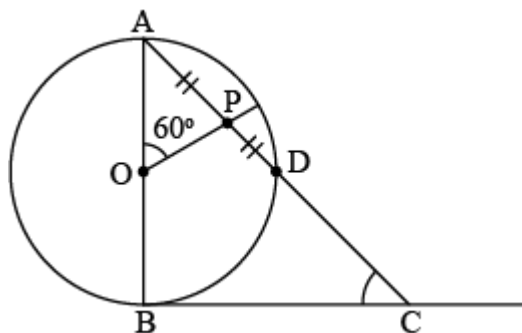
Find  $a$  and  $b$  so that the numbers  $a, 7, b, 23$  are in A.P.

**Marks:[2.00]**

**Q.No.3:** A solid piece of metal in the form of a cuboid of dimensions  $11 \text{ cm} \times 7 \text{ cm} \times 7 \text{ cm}$  is melted to form ' $n$ ' number of solid spheres of radii  $\frac{7}{2} \text{ cm}$  each. Find the value of  $n$ .

**Marks:[2.00]**

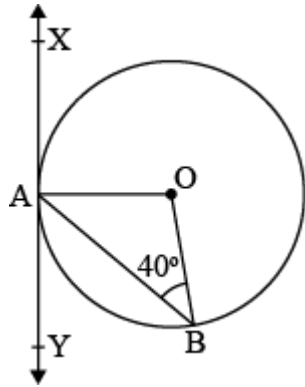
**Q.No.4:** In Fig. AB is diameter of a circle centered at O. BC is tangent to the circle at B. If OP bisects the chord AD and  $\angle AOP = 60^\circ$ , then find  $m \angle C$ .



**OR**

In Fig. XAY is a tangent to the circle centered at O. If  $\angle ABO = 40^\circ$ , then find

$m \angle BAY$  and  $m \angle AOB$ .



**Marks:[2.00]**

**Q.No.5:** If mode of the following frequency distribution is 55, then find the value of  $x$ .

Class:	0 - 15	15 - 30	30 - 45	45 - 60	60 - 75	75 - 90
Frequency:	10	7	$x$	15	10	12

**Marks:[2.00]**

**Q.No.6:** Find the sum of first 20 terms of an A.P. whose  $n^{\text{th}}$  term is given as  $a_n = 5 - 2n$ .

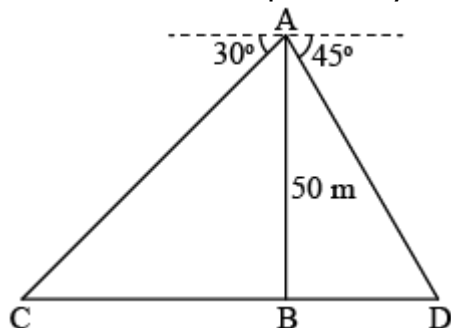
**Marks:[2.00]**

### Section B

**Q.No.7:** Draw two concentric circles of radii 2 cm and 5 cm. From a point on the outer circle, construct a pair of tangents to the inner circle. **Marks:[3.00]**

**Q.No.8:** In Fig. AB is tower of height 50 m. A man standing on its top, observes two cars on the opposite sides of the tower with angles of depression  $30^\circ$  and  $45^\circ$  respectively. Find the distance between the two cars.

**Marks:[3.00]**



**Q.No.9:** The mean of the following frequency distribution is 25. Find the value of  $f$ .

<b>Class :</b>	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
<b>Frequency:</b>	5	18	15	$f$	6

**OR**

Find the mean of the following data using assumed mean method :

<b>Class :</b>	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25
<b>Frequency:</b>	8	7	10	13	12

**Marks:[3.00]**

**Q.No.10:** Heights of 50 students of class X of a school are recorded and following data is obtained:

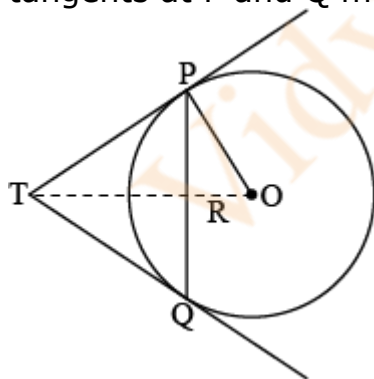
<b>Height (in cm):</b>	130-135	135-140	140-145	145-150	150-155	155-160
<b>Number of Students:</b>	4	11	12	7	10	6

Find the median height of the students.

**Marks:[3.00]**

### Section C

**Q.No.11:** In Fig. PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangents at P and Q meet at a point T. Find the length of TP.



**Marks:[4.00]**

**Q.No.12:** A 2-digit number is such that the product of its digits is 24. If 18 is subtracted from the number, the digits interchange their places. Find the number.

**OR**

The difference of the squares of two numbers is 180. The square of the smaller

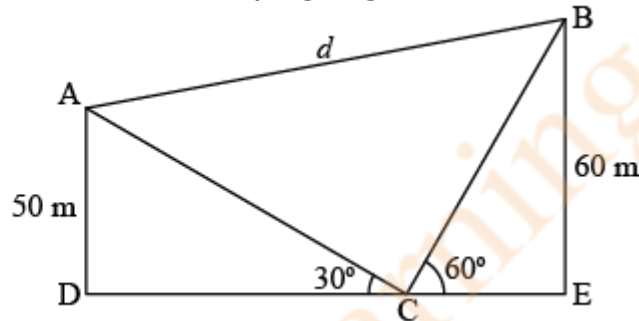
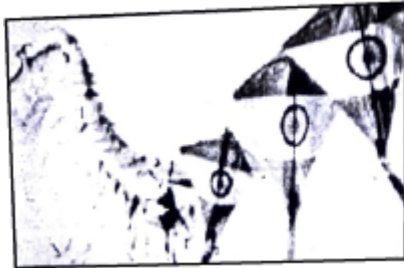
number is 8 times the greater number. Find the two numbers. **Marks:[4.00]**

**Q.No.13: Case Study – 1**

**Kite Festival**

Kite festival is celebrated in many countries at different times of the year. In India, every year 14<sup>th</sup> January is celebrated as International Kite Day. On this day many people visit India and participate in the festival by flying various kinds of kites.

The picture given below, shows three kites flying together.



In Fig. the angles of elevation of two kites (Points A and B) from the hands of a man (Point C) are found to be  $30^\circ$  and  $60^\circ$  respectively. Taking  $AD = 50$  m and  $BE = 60$  m, find

- (1) the lengths of strings used (take them straight) for kites A and B as shown in the figure.
- (2) the distance 'd' between these two kites

**Marks:[4.00]**

**Q.No.14: Case Study – 2**

A 'circus' is a company of performers who put on shows of acrobats, clowns etc. to entertain people started around 250 years back, in open fields, now generally performed in tents.

One such Circus Tent' is shown below.



The tent is in the shape of a cylinder surmounted by a conical top. If the height and diameter of cylindrical part are 9 m and 30 m respectively and height of conical part is 8 m with same diameter as that of the cylindrical part, then find

- (1) the area of the canvas used in making the tent;
- (2) the cost of the canvas bought for the tent at the rate ₹200 per sq m, if 30 sq m canvas was wasted during stitching.

**Marks:[4.00]**

Vidyarohi Learning