

# Telangana Board Class 10 Sample Paper-Set 1

## MATHEMATICS, Paper - II

(English version)

### Parts A and B

Time : 2 hrs. 45 min.]

[Maximum Marks : 40

#### Instructions :

1. In the time duration of 2 hours 45 minutes, 15 minutes of time is allotted to read and understand the Question paper.
2. Answer the Questions under **Part - A** on a separate answer book.
3. Write the answers to the Questions under **Part-B** on the Question paper itself and attach it to the answer book of **Part-A**.

### Part - A

Time : 2.15 Hours

Marks : 35

#### Note :

1. Answer **all** the questions from the given **three** sections I, II and III of **Part-A**.
2. In section - III, every question has internal choice. Answer **any one** alternative.

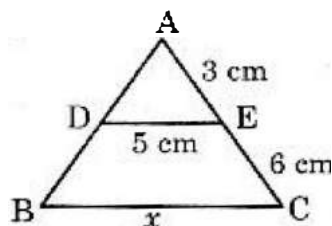
### SECTION - I

(Marks :  $7 \times 1 = 7$ )

**NOTE :** (i) Answer **all** the questions.

(ii) Each question carries 1 mark.

1. In the given figure,  $\triangle ABC \sim \triangle ADE$ , then find the value of 'x'.



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2. Find the probability of getting a sum of the numbers on them is 7, when two dice are rolled at a time.
3. If  $\tan \theta = \sqrt{3}$  (where  $\theta$  is acute), then find the value of  $1 + \cos \theta$ .
4. "A conical solid block is exactly fitted inside the cubical box of side ' $a$ ', then the volume of conical solid block is  $\frac{4}{3} \pi a^3$ ." Is this statement true? Justify your answer.
5. If the surface area of a hemisphere is ' $S$ ', then express ' $r$ ' in terms of ' $S$ '.
6. Write the formula to find the median for grouped data and explain each term.
7. "If the angle of elevation of Sun increases from  $0^\circ$  to  $90^\circ$ , then the length of shadow of a tower decreases." Is this statement true? Justify your answer.

### SECTION - II

(Marks :  $6 \times 2 = 12$ )

**NOTE :** (i) Answer **all** the questions.

(ii) Each question carries 2 marks.

8. Prove that  $\frac{1 - \sin \theta}{1 + \sin \theta} = \sec \theta - \tan \theta$ , (where  $\theta$  is acute).
9. ABC is an isosceles triangle and  $\angle B = 90^\circ$ , then show that  $AC^2 = 2AB^2$ .
10. Find the volume and surface area of a sphere of radius 42 cm  $\left( \pi = \frac{22}{7} \right)$ .
11. If  $\tan(A+B) = 1$ , and  $\cos(A - B) = \frac{\sqrt{3}}{2}$ ,  $0^\circ < A+B < 90^\circ$  and  $A > B$  ;  
find A and B.
12. A solid metallic ball of volume  $64 \text{ cm}^3$  melted and made into a solid cube. Find the side of the solid cube.

13. A boat has to cross a river. It crosses the river by making an angle of  $60^\circ$  with the bank of the river due to the stream of the river and travels a distance of 450 m to reach the another side of the river. Draw the diagram for this data.

**SECTION - III**

(Marks :  $4 \times 4 = 16$ )

**NOTE :**

1. Answer **all** the following questions.
2. In this section, every question has internal choice to answer.
3. Each question carries 4 marks.

14. A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball is double that of red ball, find the number of blue balls in the bag.

**OR**

Evaluate : 
$$\frac{\tan^2 60^\circ + 4 \cos^2 45^\circ + 3 \sec^2 30^\circ + 5 \cos^2 90^\circ}{\operatorname{cosec} 30^\circ + \sec 60^\circ - \cot^2 30^\circ}$$

15. Consider the following distribution of daily wages of 50 workers of a factory.

Daily wages in Rupees	200-250	250-300	300-350	350-400	400-450
Number of Workers	6	8	14	10	12

Find the mean daily wages of the workers in the factory by using step-deviation method.

**OR**

Draw a circle of radius 5 cm. From a point 8 cm away from its centre, construct a pair of tangents to the circle. Find the lengths of tangents.

16. The following table gives production yield per hectare of Wheat of 100 farms of a village.

Production yield (Quintal/Hec.)	50-55	55-60	60-65	65-70	70-75	75-80
Number of farmers	2	24	16	8	38	12

Draw both Ogives for the above data. Hence obtain the median production yield.

**OR**

Construct a triangle of sides 5 cm, 6 cm and 7 cm, then construct a triangle similar to it, whose sides are  $\frac{2}{3}$  of the corresponding sides of the first triangle.

17. DWACRA is supplied cuboidal shaped wax block with measurements 88 cm  $\times$  42 cm  $\times$  35 cm. From this how many number of cylindrical candles of 2.8 cm diameter and 8 cm of height can be prepared ?

**OR**

Two poles of equal heights are standing opposite to each other, on either side of the road, which is 80 m wide. From a point between them on the road, the angles of elevation of top of the poles are  $60^\circ$  and  $30^\circ$  respectively. Find the height of the poles.

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