



## MATHS

### BOOKS - UNIQUE MATHS (HINGLISH)

#### GEOMETRIC CONSTRUCTIONS

##### Example

1.  $\Delta LMN \sim \Delta XYZ$ , in  $\Delta LMN$ ,  $LM=6\text{cm}$ ,  $MN=6.8\text{cm}$ ,  $LN=7.6\text{cm}$  and  $(LM)/(XY)=(4)/(3)$ , Construct  $\Delta LMN$  and  $\Delta XYZ$ .



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2.  $\Delta AMT \sim \Delta AHE$ , in  $\Delta AMT$ ,  $MA = 6.3\text{cm}$ ,  $\angle = 120^\circ$ ,  $AT = 4.9$  and  $\frac{MA}{HA} = \frac{7}{5}$ ,

Construct  $\triangle AHE$ .



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## Practice Set 4 1

1.  $\triangle ABC \sim \triangle LMN$  In  $\triangle ABC$ ,  $AB = 5.5\text{cm}$ ,  $BC = 6\text{cm}$ ,  $CA = 4.5\text{cm}$ , Construct  $\triangle ABC$  and  $\triangle LMN$  such that  $\frac{BC}{MN} = \frac{5}{4}$



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2.  $\triangle PQR \sim \triangle LTR$ . In  $\triangle PQR$ ,  $PQ=4.2\text{cm}$ ,  $QR=5.4\text{cm}$ ,  $PR=4.8\text{cm}$ . Construct  $\triangle PQR$  and  $\triangle LTR$  such that  $\frac{PQ}{LT} = \frac{3}{4}$ .



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3.  $\Delta RST \sim \Delta XYZ$ . In

$\Delta RST$ ,  $RS = 4.5\text{cm}$ ,  $\angle RST = 40^\circ$ ,  $ST = 5.7\text{cm}$ . Construct

$\Delta RST$  and  $\Delta XYZ$ , Such that  $\frac{RS}{XY} = \frac{3}{5}$

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4.  $\Delta AMT \sim \Delta AHE$ . In

$\Delta AMT$ ,  $AM = 6.3\text{cm}$ ,  $\angle TAM = 50^\circ$ ,  $AT = 5.6\text{cm}$ .  $\frac{AM}{AH} = \frac{7}{5}$ .

Construct  $\Delta AHE$ .

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## Practice Set 4 2

1. Construct a tangent to a circle with centre P and radius 3.2 cm at ant point M on it.



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2. Draw a circle of radius 2.7cm Draw a tangent to the circle at any point on it.



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3. Draw a circle of radius 3.6cm. Draw a tangent to the circle at any point on it without using the centre.



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4. Draw a circle of radius 3.3 cm. Draw diameter PQ. Draw tangents at P and Q. Write observation about the tangents.



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5. Draw a circle with radius 3.4 cm. Draw a chord MN of length 5.7cm in it. Construct tangents at points M and N to the circle.



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6. Draw a circle with centre P and radius 3.4cm. Take point Q at a distance 5.5cm from the centre Construct tangents to the circle from point Q.



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7. Draw a circle with radius 4.1 cm. Construct tangents to the circle from a point at a distance 7.3 cm from the centre.



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## Problem Set 4

1. Select the correct alternative for each of the following questions.

The number of tangents that can be drawn to a circle at a point on the circle is.....

A. 3

B. 2

C. 1

D. 0

**Answer: C**



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2. Select the correct alternative for each of the following questions.

The maximum number of tangents that can be drawn to a circle

from a point outside it is.....

A. 2

B. 1

C. one and only one

D. 0

**Answer: A**



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3. Select the correct alternative for each of the following questions.

If  $\triangle ABC \sim \triangle PQR$  and  $\frac{AB}{PQ} = \frac{7}{5}$ , then.....

A.  $\triangle ABC$  is bigger

B.  $\triangle PQR$  is bigger

C. Both triangles will be equal

D. Can not be decided.

**Answer: A**

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4. Draw a circle with centre O and radius 3.5cm. Take point P at a distance 5.7 cm from the centre. Draw tangents to the circle from point P.

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5. Draw any circle . Take any point A on it and construct tangents at A without using the centre of the circle.

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6. Draw a circle of a diameter 6.4 cm. Take a point R at a distance equal to its diameter from the centre. Draw tangents from point R.

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7. Draw a circle with P. Draw an arc AB of  $100^\circ$  measures. Draw tangents to the circle at point A and point B.

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8. Draw a circle of radius 3.4 cm and centre E. Take a point F on the circle. Take another point A such that E-F-A and  $FA = 4.1\text{cm}$ . Draw tangents to the circle from point A.

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9.

 $\triangle ABC \sim \triangle LBN$ 

In

$\triangle ABC$ ,  $AB = 5.1\text{cm}$ ,  $\angle B = 40^\circ$ ,  $BC = 4.8\text{cm}$ .  $\frac{AC}{LN} = \frac{4}{7}$

Construct  $\triangle ABC$  and  $\triangle LBN$ .



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10. Construct  $\triangle PYO$  such that,  $PY = 6.3\text{cm}$ ,  $YQ = 7.2\text{cm}$ .

$PQ = 5.8\text{cm}$ . If  $\frac{YZ}{YQ} = \frac{6}{5}$ , then construct  $\triangle XYZ$  similar to

$\triangle PYQ$ .



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11. Construct  $\triangle DEF$  such that,

$DE = 6.5\text{cm}$ ,  $\angle E = 50^\circ$ ,  $\angle F = 30^\circ$ , and draw  $EM \perp DF$ ,

measure the length  $EM$ .



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12. Draw a triangle ABC, right angled at B such that AB=3.7 cm, and BC=4.2, Now construct a triangle similar to  $\Delta ABC$ , each of whose side is  $\frac{7}{5}$  times the corresponding side of  $\Delta ABC$ .



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13. Draw a circle of radius 2.7 cm and draw chord PQ of length 4.5 cm. Draw tangents at P and Q without using centre.



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## Mcqs

1. Tangents drawn from two ends of a diameter are.....

- A. parallel
- B. intersecting
- C. non-planer
- D. skew

**Answer: A**



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2. Circumcenter of an acute angled triangle is.....of the triangle.

- A. on one side
- B. in the interior
- C. on one angle
- D. in the exterior

**Answer: B**



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3. If circumcentre lies in the exterior of the triangle then that triangle is ..... Triangle.

A. a right angled

B. an acute angled

C. an isoceses

D. an obtuse angled

**Answer: D**



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4. Three sides of  $\triangle ABC$  are given to construct similar  $\triangle PQR$  atleast..... Of  $\triangle PQR$  must be given.

- A. one angle
- B. any two angle
- C. any one side
- D. all sides

**Answer: C**



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5. .... Tangents can be drawn from a point outside a circle.

- A. Zero
- B. Two

C. One

D. Infinite

**Answer: B**



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6. In how many parts of the line segment AC needs to be divided to

get the ratio  $\frac{AB}{BC} = \frac{4}{3} = ?$

A. 4

B. 3

C. 7

D. 2

**Answer: C**



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7. If a tangents has to be drawn to a circle without using centre, a..... Is drawn in a circle.

- A. circle
- B. tangent
- C. rectangle
- D. triangle

**Answer: D**



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8. .... Property is used to construct a tangent at a point on the circle.

- A. Measure of circle



B. Tangent drawn from an external point

C. Radius is perpendicular to tangent

D. Measure of semicircle.

**Answer: C**



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9. Circumcenter and incentre of.... Triangle are at same point.

A. a scalene

B. an isocetes

C. an acute angled

D. an equilateral

**Answer: D**



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10.  $\triangle ABC \sim \triangle XYZ \quad \therefore \dots\dots\dots \cong \dots\dots\dots$

- A. AB, XY
- B. BC, YZ
- C. AC, XZ
- D.  $\angle B, \angle Y$

**Answer: D**



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**Questions 2 Marks**

1. Draw a tangent at any point M on the circle of radius 2.9 cm and centre O.



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2.  $\triangle LMN \sim \triangle XYZ$ , In  $\triangle LMN$ ,  $LM = 6\text{cm}$   
 $MN = 6.8\text{cm}$ ,  $LN = 7.6\text{cm}$  and  $\frac{LM}{XY} = \frac{4}{3}$ , Construct  
 $\triangle LMN$  and  $\triangle XYZ$ .



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3. Draw perpendicular bisector of seg AB of length 8.3 cm.



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4. Construct  $\triangle LMN$ , such that  
 $LM = 6.2\text{cm}$ ,  $MN = 4.9\text{cm}$ ,  $LN = 5.6\text{cm}$ .



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## Questions 3 Marks

1. Construct  $\triangle DEF$  such that,  $DE = 6.5\text{cm}$ ,  $\angle E = 50^\circ$ ,  $\angle F = 30^\circ$ , and draw  $EM \perp DF$ , measure the length EM.



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2. Draw a circle with centre P and radius 3.1cm Draw a chord MN of length 3.8cm. Draw tangents to the circle through points M and N.



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3. Draw a tangent to the circle from the point B, having radius 3.6 cm. and centre C Point B is at a distance 7.2 cm from the centre.



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4.  $\Delta SHR \sim \Delta SVU$ , In

$\Delta SHR$ ,  $SH = 4.5\text{cm}$ ,  $HR = 5.2\text{cm}$ ,  $SR = 5.8\text{cm}$ . and  $\frac{SH}{SV} = \frac{3}{5}$ ,

Construct  $\Delta SVU$



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5.  $\Delta XYZ \sim \Delta DEF$ , In

$\Delta DEF$ ,  $DE = 5.5\text{cm}$ ,  $\angle E = 40^\circ$ ,  $EF = 4.0\text{cm}$  and  $\frac{XY}{DE} = \frac{6}{5}$

then construct  $\Delta XYZ$



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