MATHS

BOOKS - RS AGGARWAL MATHS (HINGLISH)

CONSTRUCTIONS

Exercise 9 A

1. Draw a line segment AB of length $7cm$.

Using ruler and compasses, find a point P on

AB such that $\dfrac{AP}{AB} = \dfrac{3}{5}$.

2. (i) Draw a line segment of length $8cm$ and divide it internally in the ratio $4:5$.

(ii) Draw a line segment of length $7.6cm$ and divide it in the ratio $5:8$. Measure the two parts.

3. Construct a $\triangle PQR$, in which $PQ = 6cm$, $QR = 7cm$ and $PR = 8cm$. Then, construct another triangle whose sides are $\frac{4}{5}$ times the corresponding sides of $\triangle PQR$.

4. Construct a triangle with sides 5 cm, 6 cm and 7 cm and then another triangle whose sides are $\frac{7}{5}$ of the corresponding sides of the first triangle.

5. Construct a $\triangle ABC$ with $BC = 6cm$, $\angle B = 60°$ and $AB = 5cm$. Construct another triangle whose sides are $\dfrac{3}{4}$ times the corresponding sides of $\triangle ABC$.

6. Construct a $\triangle ABC$ in which $AB = 6cm$, $\angle A = 30°$ and $\angle B = 60°$. Construct another

$\triangle AB'C'$ similar to $\triangle ABC$ with base $AB' = 8cm$.

7. Construct a $\triangle ABC$ in which $BC = 8cm$, $\angle B = 45°$ and $\angle C = 60°$. Construct another similar to $\triangle ABC$ such that its sides are $\dfrac{3}{5}$ of the corresponding sides of $\triangle ABC$.

8. To construct a triangle similar to $\triangle ABC$ in which $BC = 4.5 cm,$ $\angle B = 45°$ and $\angle C = 60°$, using a scale factor of $\dfrac{3}{7}$, BC will be divided in the ratio

A. $3:4$

B. $4:7$

C. $3:10$

D. $3:7$

Answer: A

9. Construct an isosceles triangle whose base is 8 cm and altitude 4 cm and then another triangle whose sides are $1\dfrac{1}{2}$ times the corresponding sides of the isosceles triangle.

10. Draw a right triangle in which the sides (other than hypotenuse) are of lengths 4 cm and 3 cm. Then construct another triangle

whose sides are $\dfrac{5}{3}$ times the corresponding sides of the given triangle.

Exercise 9 B

1. Draw a circle of radius $3cm$. From a point P, $7cm$ away from the centre of the circle, draw two tangents to the circle.Also, measure the lengths of the tangents.

2. Draw two tangents to a circle of radius $3.5cm$ from a point P at a distance of $6.2cm$ from its centre.

3. Draw a circle of radius 3 cm. Take two points P and Q on one of its extended diameter each at a distance of 7 cm from its centre. Draw tangents to the circle from these two points P and Q.

4. Draw a circle with centre O and radius $4cm$. Draw any diameter AB of this circle. Construct tangents to the circle at each of the two end points of the diameter AB.

5. Draw a circle with the help of a bangle. Take a point outside the circle. Construct the pair

of tangents from this point to the circle.

6. Draw a line segment AB of length 8 cm. Taking A as centre, draw a circle of radius 4 cm and taking B as centre, draw another circle of radius 3 cm. Construct tangents to each circle from the centre of the other circle.

7. Draw a circle of radius $4.2cm$. Draw of pair of tangents to this circle inclined to each other at an angle of $45°$.

8. Write the steps of construction for drawing a pair of tangents to a circle of radius $3cm$, which are inclined to each other at an angle of $60°$.

9. Draw a circle of radius $3cm$. Draw a tangent to the circle making an angle of $30°$ with a line passing through the centre.

10. Construct a tangent to a circle of radius 4 cm from a point on the concentric circle of radius 6 cm and measure its length. Also verify the measurement by actual calculation

11. Draw two concentric circles of radii $3cm$ and $5cm$. Taking a point on the outer circle, construct the pair of tangents to the inner circle.

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12. To construct the tangents to a circle from a point outside it.

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1. Draw a line segment AB of length $5.4cm$. Divide it into six equal parts. Write the steps of construction.

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2. Draw a line segment AB of length $6.5cm$ and divide it in the ratio $4:7$. Measure each of the two parts.

3. Construct a $\triangle ABC$ in which $BC = 6.5cm$, $AB = 4.5cm$ and $\angle ABC = 60°$. Construct a triangle similar to this triangle whose sides are $\dfrac{3}{4}$ of the corresponding sides of $\triangle ABC$.

4. Construct a $\triangle ABC$ in which $BC = 5cm$, $\angle C = 60°$ and altitude from A equal to $3cm$.

Construct a $\triangle ADE$ similar to $\triangle ABC$ such that each side of $\triangle ADE$ is $\dfrac{3}{2}$ times the corresponding sides of $\triangle ABC$. Write the steps of construction.

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5. Construct an isosceles triangle whose base is $9cm$ and altiude $5cm$. Construct another triangle whose sides are $\dfrac{3}{4}$ of the corresponding sides of the first isosceles triangle.

6. Draw a $\triangle ABC$, right-angled at B such that $AB = 3cm$ and $BC = 4cm$. Now, construct a triangle similar to $\triangle ABC$, each of whose sides is $\dfrac{7}{5}$ times the corresponding sides of $\triangle ABC$.

7. Draw a circle of radius $4.8cm$. Take a point P on it. Without using the centre of the circle,

construct a tangent at the point P. Write the steps of construction.

8. Draw a circle of radius $3.5cm$. Draw a pair of tangents to this circle which are inclined to each other at an angle $60°$. Write the steps of construction.

9. Draw a circle of radius $4cm$. Draw tangent to the circle making an angle of $60°$ with a line passing through the centre.

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10. Draw two concentric circles of radii $4cm$ and $6cm$. Construct a tangent to the smaller circle from a point on the larger circle. Measure the length of this tangent.

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