MATHS

NCERT - NCERT MATHEMATICS(HINGLISH)

CONSTRUCTIONS

Construction

1. : To divide a line segment in a given ratio.

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2. Construct a triangle similar to a given triangle ABC with its sides equal to $\frac{5}{3}$ of the corresponding sides of the triangle ABC (i.e., of scale factor $\frac{5}{3}$)

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

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Example

1. Construct a triangle similar to a given triangle ABC with its sides equal to $\frac{3}{4}$ of the corresponding sides of the triangle ABC (i.e., of scale factor $\frac{3}{4}$).

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2. Construct a triangle similar to a given triangle ABC with its sides equal to $\frac{5}{3}$ of the

corresponding sides of the triangle ABC (i.e., of scale factor $\frac{5}{3}$).

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Exercise 11 1

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

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2. Construct a triangle of sides 4 cm, 5 cm and 6 cm and then a triangle similar to it whose sides are $\frac{2}{3}$ of the corresponding sides of the first triangle.

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3. 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.

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

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5. Draw a triangle ABC with side BC = 6 cm, AB = 5 cm and $\angle ABC = 60^\circ$. Then construct a

triangle whose sides are $\frac{3}{4}$ of the corresponding sides of the triangle ABC.

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6. Draw a triangle ABC with side BC = 7 cm, $\angle B = 45^\circ, \angle A = 105^\circ$. Then, construct a triangle whose sides are $\frac{4}{3}$ times the corresponding sides of $\triangle$ ABC.

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7. 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 $\frac{5}{3}$ times the corresponding sides of the given triangle.

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Exercise 11 2

1. Draw a circle of radius 6 cm. From a point 10 cm away from its centre, construct the pair of tangents to the circle and measure their lengths.

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2. 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.

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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.

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4. Draw a pair of tangent to a circle of radius 5 cm which are inclined to each other at an

angle of 60°. Give steps of construction.

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5. 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.

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6. Let ABC be a right triangle in which AB = 6 cm, BC = 8 cm and $\angle B = 90^\circ$. BD is the= perpendicular from B on AC. The circle through B, C, D is drawn. Construct the tangents from A to this circle.

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7. 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.

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