



MATHS

BOOKS - NAGEEN MATHS (HINGLISH)

CONSTRUCTIONS

[Solve Examples](#)

1. Determine a point which divides a line segment 7 cm long, internally in the ratio 2:3



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2. Determine a point which divides a line segment 6cm long externally in the ratio 5:3



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3. Determine a point which divides a line segment 6 cm long externally in the ratio 3:5.



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4. Construct a triangle similar to a given triangle ABC such that each of its sides is $\frac{2}{3}$ rd of the corresponding sides of the triangle ABC. It is given that AB=4cm, BC=5cm and AC=6cm .



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5. Construct an isosceles triangle whose base is 6cm and altitude 4 cm. Then construct another triangle whose sides are $\frac{3}{4}$ times the corresponding sides of the first triangle.





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6. Construct a quadrilateral ABCD with $AB=3$ cm, $AD=2.7$ cm, $DB=3.6$ cm, $\angle B = 110^\circ$ and $BC=4.2$ cm. Construct another quadrilateral $A'B'C'D'$ similar to quadrilateral ABCD so that diagonal $BD'=4.8$ cm.



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7. Construct a cyclic quadrilateral ABCD in which $AB=4.2$ cm, $BC=5.5$ cm, $CA=4.6$ cm and

$AD=3$ cm. Also construct a quadrilateral similar to $\square ABCD$ whose sides are 1.5 times the corresponding sides of $\square ABCD$.



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Construction Of Tangents To A Circle

1. Take a point O on the plane of the paper. With O as centre draw a circle of radius 4 cm. Take point P on this circle and draw a tangent at P .



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2. Draw a circle of radius 3 cm. Take a point P on it. Without using the centre of the circle, draw a tangent to the circle at point P.



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3. Draw a circle of radius 2.5 cm. Take a point at a distance of 5 cm from the centre of the circle. From point P, draw two tangents to the circle.



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4. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other angle of 60° .



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5. Draw a circle of radius 4 cm. Take a point P outside the circle. Without using the centre of the circle, draw two tangents to the circle from point P.



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Problems From Ncert Exemplar

1. 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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2. 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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3. 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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4. 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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5. 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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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 points to the circle.



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8. Draw a line segment of length 7 cm. Find a point P on it which divides it in the ratio 3:5.



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9. Draw a $\triangle ABC$ in which $BC = 6$ cm, $CA = 5$ cm and $AB = 4$ cm. Construct a triangle similar to it and of scale factor $\frac{3}{5}$.



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10. Draw two concentric circles of radii 3 cm and 5 cm. Taking a point on outer circle, construct the pair of tangents to the other. Measure the length of a tangent and verify it by actual calculation.



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