# MATHS

# BOOKS - NCERT MATHS (ENGLISH)

# CONSTRUCTIONS

## Exercise 10 1 Multiple Choice Questions Mcqs

**1.** To divide a line segment AB in the ratio 5:7, first a ray AX is drawn, so that $\angle BAX$ is an acute angle and then at equal distances point

are marked on the ray AX such that the minimum number of these points is

A. 8

B. 10

C. 11

D. 12

**Answer: D**

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**2.** To divide a line segment AB in the ratio 4:7, a ray AX is drawn first such that $\angle BAX$ is an acute angle and then points $A_1, A_2, A_3, \ldots\ldots$ are located at equal distance on the ray AX and the point B is joined to

A. $A_{12}$

B. $A_{11}$

C. $A_{10}$

D. $A_9$

**Answer: B**

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**3.** To divide a line segment AB in the ratio 5:6, draw a ray AX such that $\angle BAX$ is an acute angle, the draw a ray BY parallel to AX and the points

$A_1, A_2, A_3, \ldots.$ and $B_1, B_2, B_3, \ldots.$ are located to equal distances on ray AX and BY, respectively. Then, the points joined are

A. $A_5$ and $B_6$

B. $A_6$ and $B_5$

C. $A_4$ and $B_5$

D. $A_5$ and $B_4$

**Answer: A**

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**4.** To construct a triangle similar to a given $\Delta ABC$ with its sides $\frac{3}{7}$ of the corresponding sides of $\Delta ABC$, first draw a ray BX such that $\angle CBX$ is an acute angle and X lies on the opposite side of A with respect to BC. Then,

locate points $B_1, B_2, B_3, \ldots .$ on BX at equal distances and next step is to join

A. $B_{10}$ to C

B. $B_3$ to C

C. $B_7$ to C

D. $B_4$ to C

**Answer: C**

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**5.** To construct a triangle similar to a given $\Delta ABC$ with its sides $\frac{3}{7}$ of the corresponding sides of $\Delta ABC$, first draw a ray BX such that $\angle CBX$ is an acute angle and X lies on the opposite side of A with respect to BC. The minimum number of points to be located at equal distances on ray BX is

A. 5

B. 8

C. 13

D. 3

**Answer: B**

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**6.** To draw a pair of tangents to a circle which are inclined to each other at an angle of $60^\circ$, it is required to draw tangents at end points of those two radii of the circle, the angle between them should be

A. $135^\circ$

B. $90^\circ$

C. $60^\circ$

D. $120^\circ$

**Answer: D**

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## Exercise 10 2 Very Short Answer Type Questions

**1.** By geometrical construction, it is possible to divide a line segment in the ratio $\sqrt{3}: \frac{1}{\sqrt{3}}$.

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**2.** To constuct a triangle similar to a given $\Delta ABC$ with its sides $\frac{7}{3}$ of the corresponding side of $\Delta ABC$, draw a ray BX making acute angle with BC and X lies on the opposite side of A with respect of BC. The points $B_1, B_2, \ldots\ldots, B_7$ are located at equal distances on BX, $B_3$ is joined to C and then a line segment $B_6C'$ is drawn parallel to $B_3C$, where C' lines on BC produced. Finally line segment A'C' is drawn parallel to AC.

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**3.** A pair of tangents can be constructed from a point P to a circle of radius 3.5 cm situated at a distance of 3 cm from the centre.

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**4.** A pair of tangents can be constructed to a circle inclined at an angle of $170^\circ$

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## Exercise 10 3 Short Answer Type Questions

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

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**2.** Draw a right $\Delta ABC$ in which BC=12 cm, AB=5 cm, and $\angle B = 90^\circ$. Construct a triangle similar to it and of scale factor $\frac{2}{3}$. Is the new triangle also a right triangle ?

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

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**4.** Construct a tangent to a circle of radius 4cm from a point which is at a distance of 6 cm from its centre.

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## Exercise 10 4 Long Answer Type Questions

**1.** Two line segment AB and AC include an angle of $60^\circ$, where AB=5 cm and AC= 7 cm. Locate points P and Q on AB and AC, respectively such that $AP = \frac{3}{4}AB$ and $AQ = \frac{1}{4}AC$. Join P and Q and measure the length PQ.

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**2.** Draw a parallelogram ABCD in which BC=5cm and $\angle ABC = 60^\circ$, divide it into triangles BCD and ABD by the diagonal BD. Construct the triangle BD'C' similar to $\Delta BDC$ with scale factor $\frac{4}{3}$. Draw the line segment D'A' parallel of DA, where A' lies on extended side BA. Is A'BC'D' a parallelogram ?

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**3.** 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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**4.** Draw an isosceles triangle ABC in which AB=AC= 6 cm and BC=5 cm. Construction a

triangle POR similar to $\Delta ABC$ in which PQ=8 cm. Also justify the construction.

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**5.** Draw a $\Delta ABC$ in which AB=5 cm, BC= 6 cm and $\angle ABC = 60^\circ$. Construct a triangle similar to ABC with scale factor $\frac{5}{7}$.

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**6.** Draw a circle of radius 4 cm. Construct a pair of tangents to it, the angle between which is $60^\circ$. Also justify the construction. Measure the distance between the centre of the circle and the point of intersection of tangents.

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**7.** Draw a $\Delta ABC$ in which AB=4 cm, BC=6 cm and AC=9cm. Construct a triangle similar to $\Delta ABC$ with scale factor $\frac{3}{2}$. Justify the

construction. Are the two triangles congruent ? Note that all the three angles and two sides of the two triangles are equal.

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