MATHS

BOOKS - NCERT EXEMPLAR MATHS (HINGLISH)

CONSTRUCTIONS

Constructions

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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

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 $A_1, A_2, A_3, \ldots$. 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

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

4. To construct a triangle similar to a given $\triangle ABC$ with its sides $\dfrac{3}{7}$ of the corresponding sides of $\triangle ABC$, 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 $\triangle ABC$ with its sides $\dfrac{3}{7}$ of the corresponding sides of $\triangle ABC$, 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

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

A. $135°$

B. 90°

C. 60°

D. 120°

Answer: D

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

A. $True$

B. $False$

C.

D.

Answer: True

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8. To constuct a triangle similar to a given $\triangle ABC$ with its sides $\dfrac{7}{3}$ of the corresponding side of $\triangle ABC$, draw a ray BX making acute angle with BC and X lies on the opposite side

of A with respect of BC. The points $B_1, B_2, \ldots, B_7$ are located at equal distances on BX, B_3 is joined to C and then a line segment $B_6 C'$ is drawn parallel to $B_3 C$, where C' lines on BC produced. Finally line segment A'C' is drawn parallel to AC.

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9. 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.

10. A pair of tangents can be constructed to a circle inclined at an angle of $170°$

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.

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

3. 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 $\dfrac{5}{3}$

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 $60°$, where AB=5 cm and AC= 7 cm. Locate points P and Q on AB and AC, respectively such that $AP = \dfrac{3}{4}AB$ and $AQ = \dfrac{1}{4}AC.$ Join P and Q and measure the length PQ.

2. Draw a parallelogram ABCD in which BC=5cm and $\angle ABC = 60°$, divide it into triangles

BCD and ABD by the diagonal BD. Construct the triangle BD'C' similar to $\triangle BDC$ with scale factor $\dfrac{4}{3}$. Draw the line segment D'A' parallel of DA, where A' lies on extended side BA. Is A'BC'D' a parallelogram ?

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 .

4. Draw an isosceles triangle ABC in which AB=AC= 6 cm and BC=5 cm. Construction a triangle POR similar to ΔABC in which PQ=8 cm. Also justify the construction.

5. Draw a $\triangle ABC$ in which AB=5 cm, BC= 6 cm and $\angle ABC = 60°$. Construct a triangle similar to ABC with scale factor $\dfrac{5}{7}$. Justify the construction.

6. Draw a circle of radius 4 cm. Construct a pair of tangents to it, the angle between which is $60°$. Also justify the construction. Measure the

distance between the centre of the circle and the point of intersection of tangents.

7. Draw a $\triangle ABC$ in which AB=4 cm, BC=6 cm and AC=9cm. Construct a triangle similar to $\triangle ABC$ with scale factor $\dfrac{3}{2}$. Justify the construction. Are the two triangles congruent ? Note that all the three angles and two sides of the two triangles are equal.