Chapter 10: Constructions

Exercise 10.1(MCQ)

Question 1:

To divide a line segment AB in the ratio 5: 7, first a ray AX is drawn, so that ∠BAX is an acute angle and then at equal distances points are marked on the ray AX such that the minimum number of these points is

(a) 8 (b) 10 (c) 11 (d) 12

Solution:

(d) We know that to divide a line segment AB in the ratio m: n, first draw a ray AX which makes an acute angle ∠BAX, then marked m + n points at equal distance.

Here, m = 5, n = 7

So, minimum number of these points = m+n = 5 + 7 = 12.

Question 2:

To divide a line segment AB in the ratio 4: 7, a ray AX is drawn first such that ∠BAX is an acute angle and then points A_1 A_2, A_3,… are located at equal distances on the ray AY and the point B is joined to

(a) A_{12} (b) A_{11} (c) A_{12} (d) A_9

Solution:

(b) Here, minimum 4+7 = 11 points are located at equal distances on the ray AX, and then B is joined to the last point is A_{11}

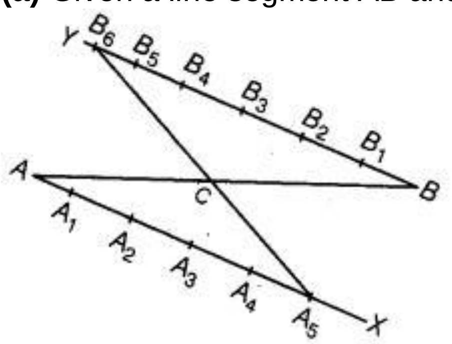
Question 3:

To divide a line segment AB in the ratio 5: 6, draw a ray AY such that ∠BAX is an acute angle, then draw a ray BY parallel to AY and the points A_1, A_2, A_3,… and B_1, B_2, B_3,… are located to equal distances on ray AY and BY, respectively. Then, the points joined are

(a) A_5 and A_6 (b) A_6 and B_5 (c) A_4 and B_5 (d) A_5 and B_4

Solution:

(a) Given a line segment AB and we have to divide it in the ratio 5:6.



Steps of construction

1. Draw a ray AX making an acute ∠BAX.
2. Draw a ray BY parallel to AX by making ∠ABY equal to ∠BAX.
3. Now, locate the points A_1, A_2, A_3, A_4 and A_5 (m= 5) on AX and B_1, B_2, B_3, B_4, B_5 and B_6 (n = 6) such that all the points are at equal distance from each other.
4. Join B_6A_5. Let it intersect AB at a point C.
   Then, AC:BC = 5:6

Question 4:

To construct a triangle similar to a given ΔABC with its sides $\frac{3}{7}$ of the corresponding sides of ΔABC, first, draw a ray BX such that ∠CBX is an acute angle and X lies on the opposite side of A concerning BC. Then, locate points B_1, B_2, B_3,… on BX at equal distances and the next step is to join

(a) B_{10} to C (b) B_{13} to C (c) B_7 to C (d) B_4 to C

Solution:

(c) Here, we locate points B_1, B_2, B_3, B_4, B_5, B_6 and B_7 on BX at equal distance and in the next step join the last points is B_7 to C.

Question 5:

To construct a triangle similar to a given ΔABC with its sides $\frac{8}{5}$ of the corresponding sides of ΔABC draw a ray BX such that ∠ CBX is an acute angle and X is on the opposite side of A concerning BC. The minimum number of points to be located at equal distances on ray BX is

(a) 5 (b) 8 (c) 13 (d) 3

Solution:

(b) To construct a triangle similar to a given triangle, with its sides $\frac{m}{n}$ of the corresponding sides of the given triangle the minimum number of points to be located at an equal distance is equal to the greater of m and n is $\frac{8}{5}$

Hence, $\frac{m}{n} = \frac{8}{5}$

So, the minimum number of point to be located at an equal distance on ray BX is 8.

MCQ Questions for Class 10 Maths With Answers

Question 6:

To draw a pair of tangents to a circle that are inclined to each other at an angle of 60°, it is required to draw tangents at endpoints of those two radii of the circle, the angle between them should be

(a) 135° (b) 90° (c) 60° (d) 120°

Solution:

(d) The angle between them should be 120° because in that case the figure formed by the intersection point of pair of a tangent, the two endpoints of those-two radii tangents are drawn) and the centre of the circle is a quadrilateral.

From the figure it is quadrilateral,

∠POQ + ∠PRQ = 180° [∴ sum of opposite angles are 180°]

60°+ θ = 180°

θ=120

Hence, the required angle between them is 120°.