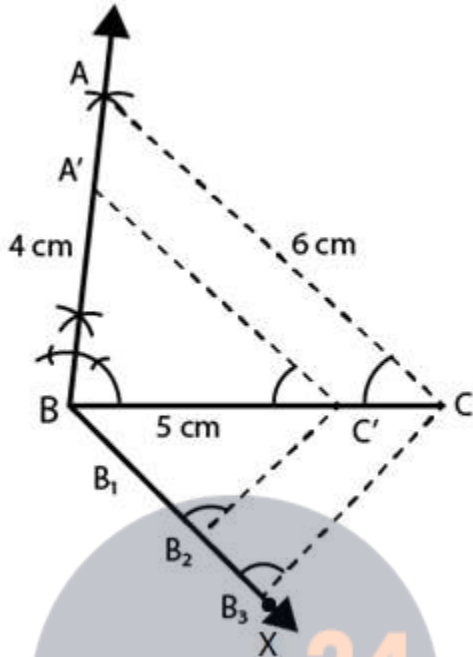


Exercise 11.2

1. 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 it.

Solution:

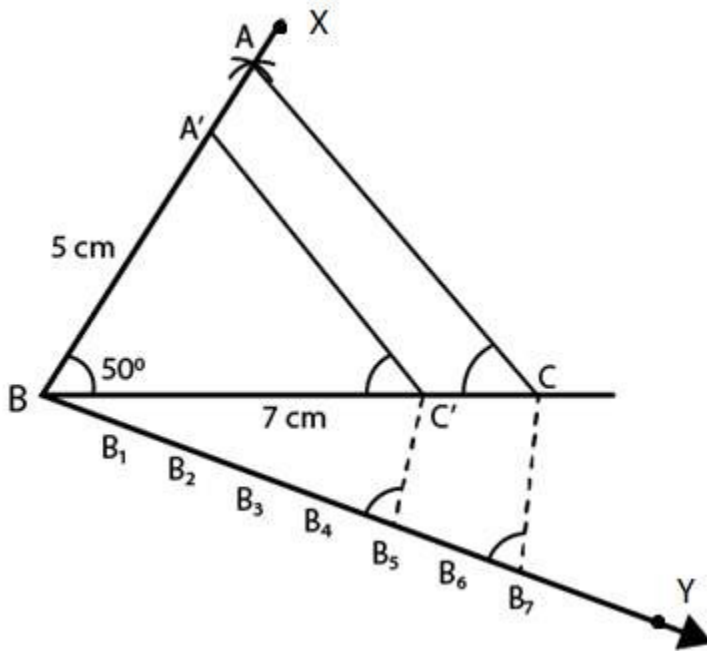


Steps of construction:

1. Draw a line segment $BC = 5$ cm.
2. With centre as B and radius 4 cm and with centre C and radius 6 cm, draw arcs from both points to intersect each other at A.
3. Now, join AB and AC. Then ABC is the triangle.
4. Draw a ray BX making an acute angle with BC and cut off 3 equal parts making $BB_1 = B_1B_2 = B_2B_3$.
5. Join B_3C .
6. Draw B_2C' parallel to B_3C and $C'A'$ parallel to CA.
Then, $\Delta A'BC'$ is the required triangle.

2. Construct a triangle similar to a given ΔABC such that each of its sides is $(\frac{5}{7})^{\text{th}}$ of the corresponding sides of ΔABC . It is given that $AB = 5$ cm, $BC = 7$ cm and $\angle ABC = 50^\circ$.

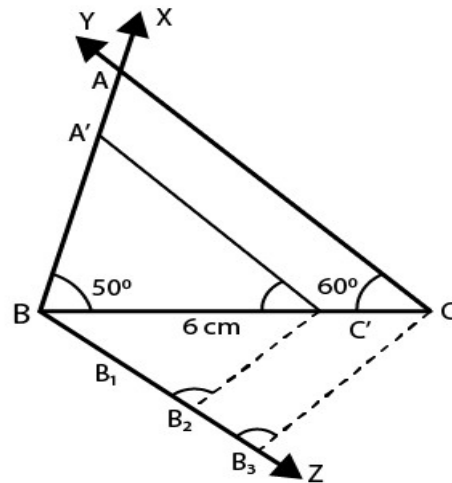
Solution:



Steps of construction:

1. Draw a line segment $BC = 7$ cm.
 2. Draw a ray BX making an angle of 50° and cut off $BA = 5$ cm.
 3. Join AC . Then $\triangle ABC$ is the triangle.
 4. Draw a ray BY making an acute angle with BC and cut off 7 equal parts making $BB_1 = B_1B_2 = B_2B_3 = B_3B_4 = B_4B_5 = B_5B_6 = B_6B_7$.
 5. Now, join B_7 and C .
 6. Draw B_5C' parallel to B_7C and $C'A'$ parallel to CA .
- Then, $\triangle A'BC'$ is the required triangle.

3. Construct a triangle similar to a given $\triangle ABC$ such that each of its sides is $(\frac{2}{3})^{\text{rd}}$ of the corresponding sides of $\triangle ABC$. It is given that $BC = 6$ cm, $\angle B = 50^\circ$ and $\angle C = 60^\circ$.
Solution:



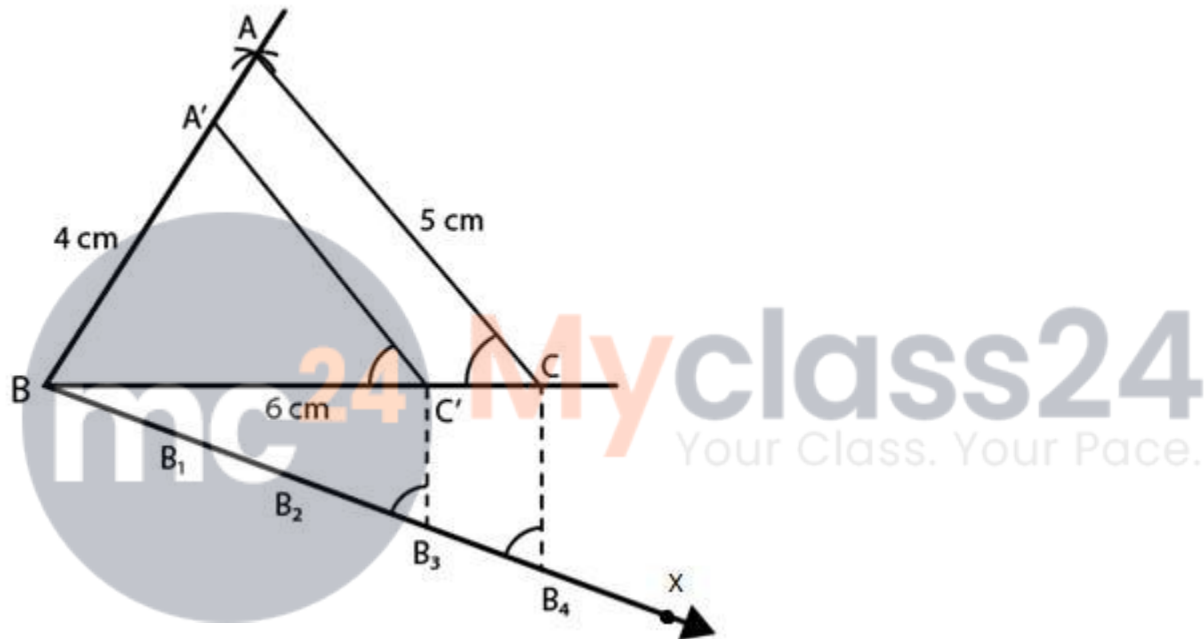
Steps of construction:

R D Sharma Solutions For Class 10 Maths Chapter 11 - Constructions

1. Draw a line segment $BC = 6$ cm.
2. Draw a ray BX making an angle of 50° and CY making 60° with BC which intersect each other at A . Then, $\triangle ABC$ is the triangle.
3. From B , draw another ray BZ making an acute angle below BC and then cut off 3 equal parts making $BB_1 = B_1B_2 = B_2B_3$
4. Now, join B_3C .
5. From B_2 , draw B_2C' parallel to B_3C and $C'A'$ parallel to CA . Then $\triangle A'BC'$ is the required triangle.

4. Draw a $\triangle ABC$ in which $BC = 6$ cm, $AB = 4$ cm and $AC = 5$ cm. Draw a triangle similar to $\triangle ABC$ with its sides equal to $(\frac{3}{4})^{\text{th}}$ of the corresponding sides of $\triangle ABC$.

Solution:

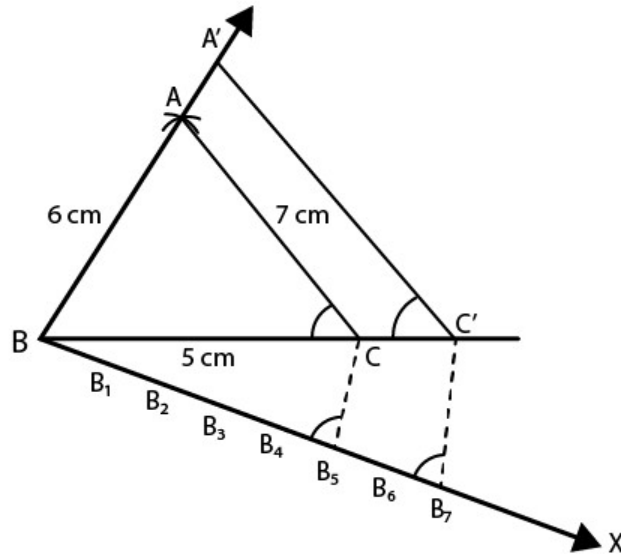


Steps of construction:

1. Draw a line segment $BC = 6$ cm.
2. With centre as B and radius 4 cm and with C as centre and radius 5 cm, draw arcs intersecting each other at A .
3. Join AB and AC . Then, $\triangle ABC$ is the triangle.
4. Draw a ray BX making an acute angle with BC and cut off 4 equal parts making $BB_1 = B_1B_2 = B_2B_3 = B_3B_4$.
5. Join B_4 and C .
6. From B_3 draw C' parallel to B_4C and from C' , draw $C'A'$ parallel to CA . Then $\triangle A'BC'$ is the required triangle.

5. Construct a triangle with sides 5 cm, 6 cm and 7 cm and then another triangle whose sides are $(\frac{7}{5})^{\text{th}}$ of the corresponding sides of the first triangle.

Solution:

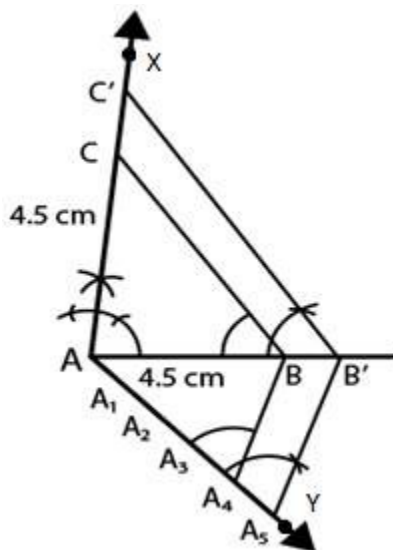


Steps of construction:

1. Draw a line segment $BC = 5$ cm.
2. With B as centre and radius 6 cm and with C as centre and radius 7 cm, draw arcs intersecting each other at A .
3. Now, join AB and AC . Then, ABC is the triangle.
4. Draw a ray BX making an acute angle with BC and cut off 7 equal parts making $BB_1 = B_1B_2 = B_2B_3 = B_3B_4 = B_4B_5 = B_5B_6 = B_6B_7$.
5. Join B_5 and C .
6. From B_7 , draw B_7C' parallel to B_5C and $C'A'$ parallel CA . Then, $\Delta A'BC'$ is the required triangle.

6. Draw a right triangle ABC in which $AC = AB = 4.5$ cm and $\angle A = 90^\circ$. Draw a triangle similar to ΔABC with its sides equal to $(5/4)^{\text{th}}$ of the corresponding sides of ΔABC .

Solution:



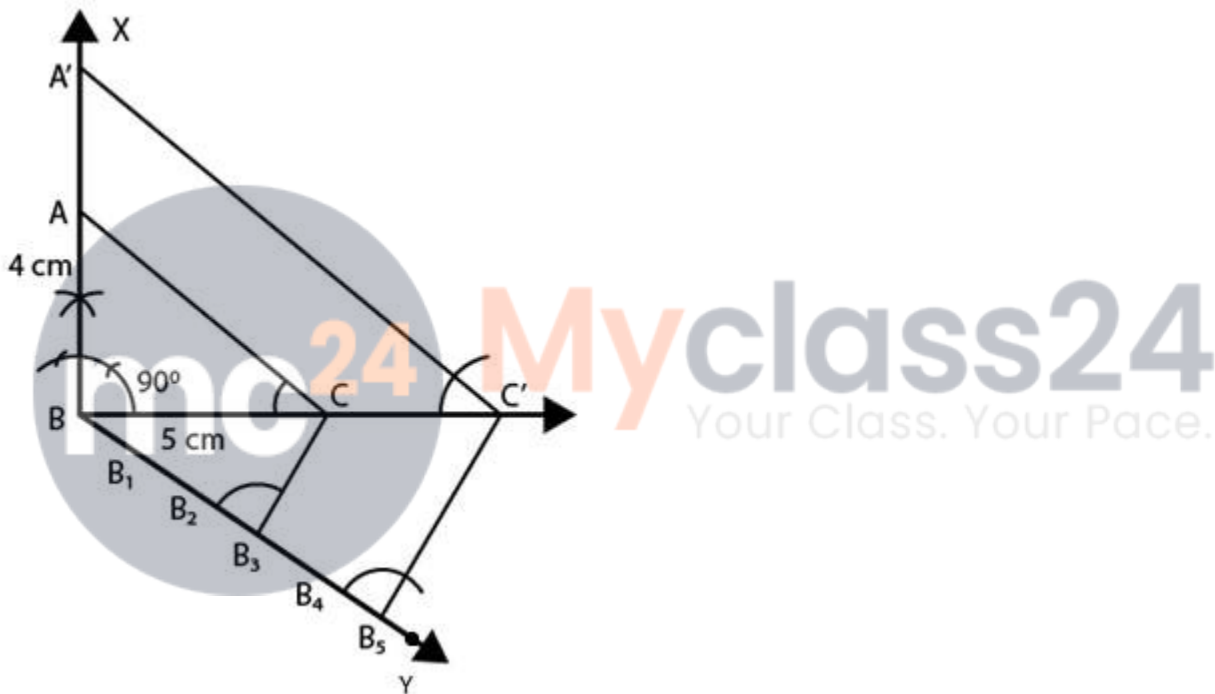
Steps of construction:

R D Sharma Solutions For Class 10 Maths Chapter 11 - Constructions

1. Draw a line segment $AB = 4.5$ cm.
2. At A, draw a ray AX perpendicular to AB and cut off $AC = AB = 4.5$ cm.
3. Now, join BC . Then, ABC is the triangle.
4. Draw a ray AY making an acute angle with AB and cut off 5 equal parts making $AA_1 = A_1A_2 = A_2A_3 = A_3A_4 = A_4A_5$
5. Join A_4 and B .
6. From A_5 , draw A_5B' parallel to A_4B and $B'C'$ parallel to BC .
Then, $\Delta AB'C'$ is the required triangle.

7. Draw a right triangle in which the sides (other than hypotenuse) are of lengths 5 cm and 4 cm. Then construct another triangle whose sides are $\frac{5}{3}$ times the corresponding sides of the given triangle.

Solution:



Steps of construction:

1. Draw a line segment $BC = 5$ cm.
2. At B, draw perpendicular BX and cut off $BA = 4$ cm.
3. Now, join AC . Then, ABC is the triangle
4. Draw a ray BY making an acute angle with BC and cut off 5 equal parts making $BB_1 = B_1B_2 = B_2B_3 = B_3B_4 = B_4B_5$
5. Join B_3 and C .
6. From B_5 , draw B_5C' parallel to B_3C and $C'A'$ parallel to CA .
Then, $\Delta A'BC'$ is the required triangle.