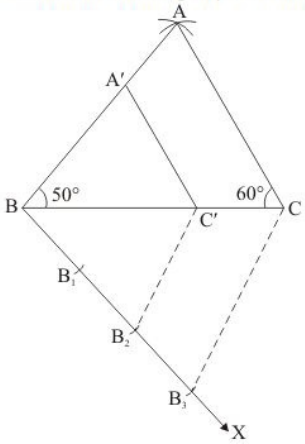
Constructions Ex 11.2 Q3

Answer :

Given that

Construct a triangle of given data, $BC = 6\,\text{cm}, \angle B = 50^0$ and $\angle C = 60^0$ and then a triangle similar to it whose sides are $\left(\frac{2}{3}\right)$ of the corresponding sides of ΔABC.

We follow the following steps to construct the given



Step of construction

Step: I- First of all we draw a line segment $BC = 6\,\text{cm}$.

Step: II- With *B* as centre draw an angle $\angle B = 50^0$.

Step: III- With *C* as centre draw an angle $\angle C = 60^0$ which intersecting the line drawn in step II at *A*.

Step: IV- Joins *AB* and AC to obtain ΔABC.

Step: V -Below *BC*, makes an acute angle $\angle CBX = 60^0$.

Step: VI -Along *BX*, mark off three points B_1, B_2 and B_3 such that $BB_1 = B_1B_2 = B_2B_3$

Step: VII -Join B_3C.

Step: VIII -Since we have to construct a triangle each of whose sides is two-third of the corresponding sides of ΔABC.

So, we take two parts out of three equal parts on *BX* from point B_2 draw $B_2C' \| B_3C$, and meeting *BC* at *C'*.

Step: IX -From *C'* draw $C'A' \| AC$, and meeting *AB* at A'

Thus, $\Delta A'BC'$ is the required triangle, each of whose sides is two third of the corresponding sides of ΔABC.

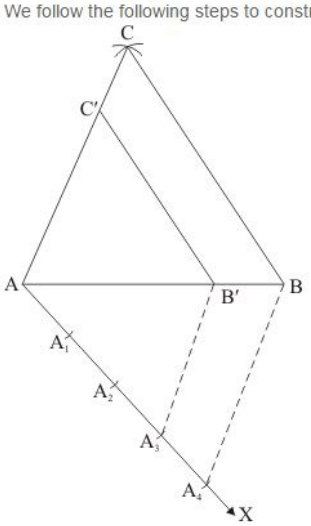
Constructions Ex 11.2 Q4

Answer :

Given that

Construct a triangle of sides $AB = 4\,\text{cm}, BC = 6\,\text{cm}$ and $AC = 5\,\text{cm}$ and then a triangle similar to it whose sides are $\left(\frac{3}{4}\right)^{\text{th}}$ of the corresponding sides of ΔABC.

We follow the following steps to construct the given



Step of construction

Step: I- First of all we draw a line segment $AB = 4\,\text{cm}$.

Step: II- With *A* as centre and radius = $AC = 5\,\text{cm}$, draw an arc.

Step: III -With *B* as centre and radius = $BC = 6\,\text{cm}$, draw an arc, intersecting the arc drawn in step II at *C*.

Step: IV -Joins *AC* and *BC* to obtain ΔABC.

Step: V -Below *AB*, makes an acute angle $\angle BAX = 60^0$.

Step: VI -Along *AX*, mark off four points $A_1, A_2, A_3 \text{and } A_4$ such that $AA_1 = A_1A_2 = A_2A_3 = A_3A_4$

Step: VII -Join A_4B.

Step: VIII -Since we have to construct a triangle each of whose sides is $\left(\frac{3}{4}\right)^{\text{th}}$ of the corresponding sides of ΔABC.

So, we take three parts out of four equal parts on *AX* from point A_3 draw $A_3B' \| A_4B,$ and meeting *AB* at B'.

Step: IX- From *B'* draw $B'C \| BC,$ and meeting *AC* at *C'*

Thus, $\Delta AB'C'$ is the required triangle, each of whose sides is $\left(\frac{3}{4}\right)^{\text{th}}$ of the corresponding sides of ΔABC.

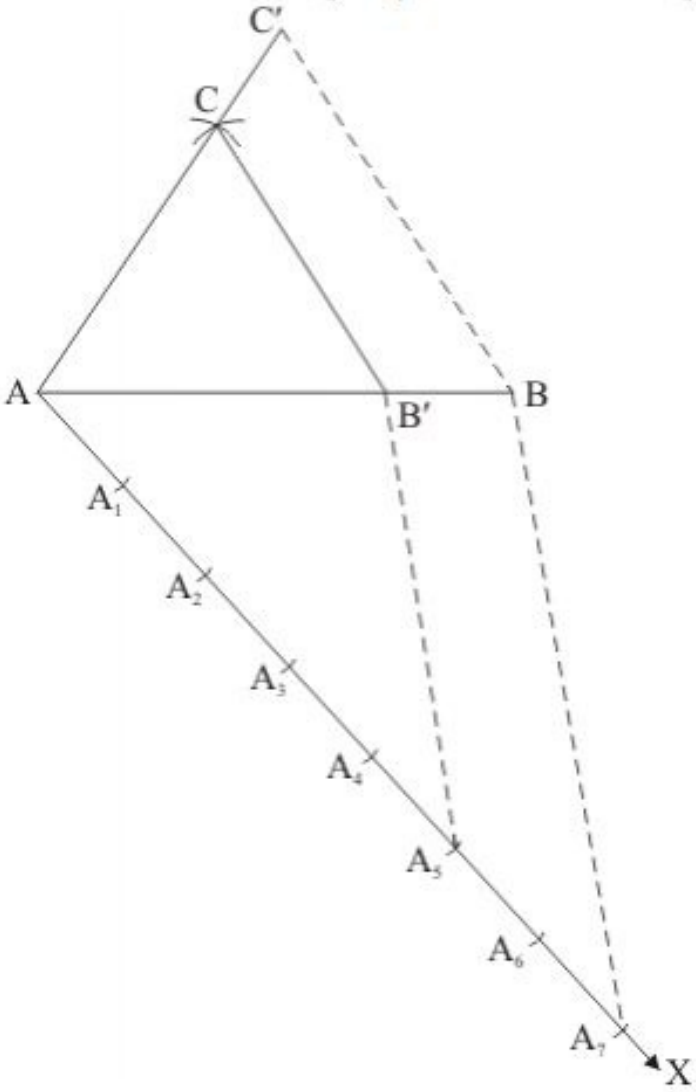
Constructions Ex 11.2 Q5

Answer :

Given that

Construct a triangle of sides $AB = 5\,\text{cm}, BC = 6\,\text{cm}$ and $AC = 7\,\text{cm}$ and then a triangle similar to it whose sides are $\left(\frac{7}{5}\right)^{\text{th}}$ of the corresponding sides of ΔABC.

We follow the following steps to construct the given



Step of construction

Step: I- First of all we draw a line segment $AB = 5\,\text{cm}$.

Step: II- With *A* as centre and radius $AC = 7\,\text{cm}$, draw an arc.

Step: III- With *B* as centre and radius = $BC = 6\,\text{cm}$, draw an arc, intersecting the arc drawn in step II at *C*.

Step: IV- Joins *AC* and *BC* to obtain ΔABC.

Step: V- Below *AB*, makes an acute angle $\angle BAX = 60^0$.

Step: VI- Along *AX*, mark off seven points $A_1, A_2, A_3, A_4, A_5, A_6 \text{and } A_7$ such that

$AA_1 = A_1A_2 = A_2A_3 = A_3A_4 = A_4A_5 = A_5A_6 = A_6A_7$

Step: VII-Join A_5B.

Step: VIII- Since we have to construct a triangle each of whose sides is $\left(\frac{7}{5}\right)^{\text{th}}$ of the corresponding sides of ΔABC.

So, we draw a line A_5B' on *AX* from point A_7 which is $A_7B' \| A_5B,$ and meeting *AB* at B'.

Step: IX- From *B'* point draw $B'C' \| BC,$ and meeting *AC* at *C'*

Thus, $\Delta AB'C'$ is the required triangle, each of whose sides is $\left(\frac{7}{5}\right)^{\text{th}}$ of the corresponding sides of ΔABC.

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