

CHAPTER 11

Constructions

Scale factor:

The ratio of the sides of the triangle to be constructed with the corresponding sides of the given triangle, is known as scale factor.

Construction of a similar triangle to the given triangle such

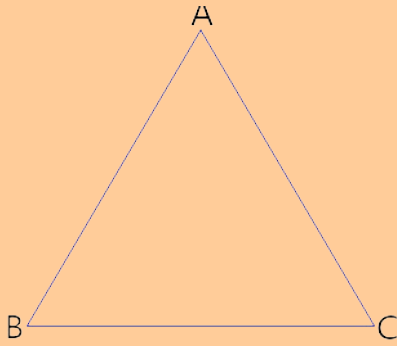
that scale factor is $\frac{m}{n}$, where $m < n$:

Method 1:

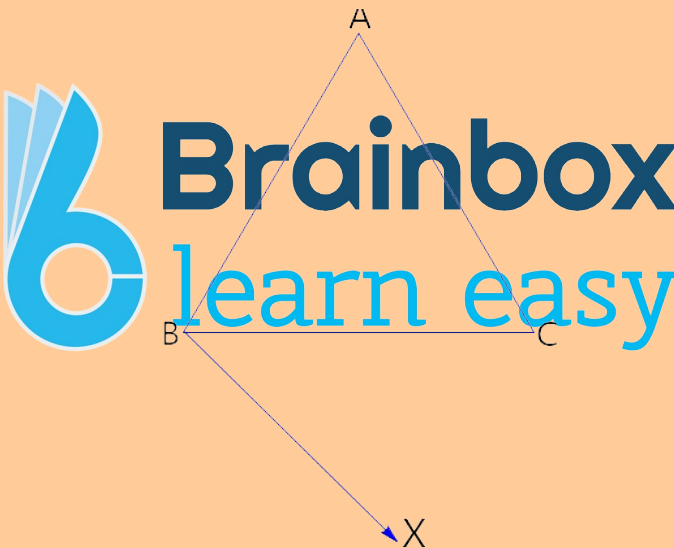
Steps of construction:

Step 1:

Construct the triangle ABC using given data and take any one of three sides of the given triangle as base. Let BC be the base of given triangle.

**Step 2:**

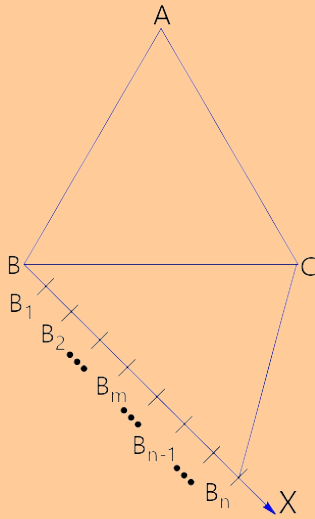
At one end, say B of base BC construct an acute angle $\angle CBX$ below the base BC.

**Step 3:**

Along BX mark off 'n' points $B_1, B_2 \dots B_n$ such that

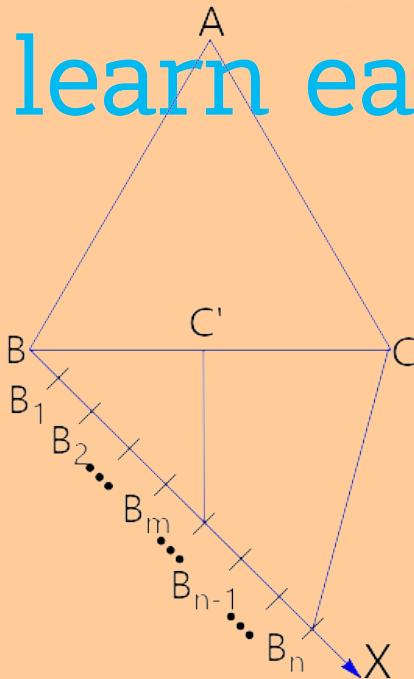
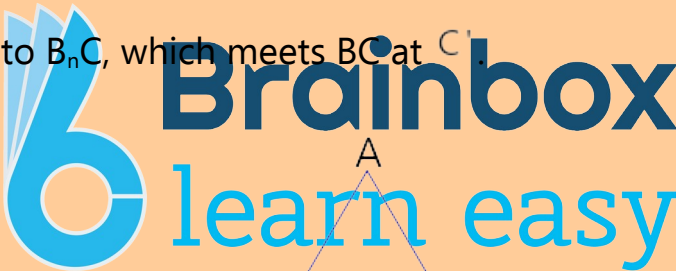
$$BB_1 = B_1B_2 = B_2B_3 = \dots = B_{n-1}B_n.$$

Join CB_n .



Step 4:

Start from point B and reach to point B_m on BX. Draw $B_m C'$ parallel to $B_n C$, which meets BC at C' .



From C' draw $A'C' \parallel AC$ meeting AB at A' .



Hence, $\triangle A'BC'$ is the required triangle, each of whose sides is

$\left(\frac{m}{n}\right)^{\text{th}}$ of the corresponding sides of $\triangle ABC$.

