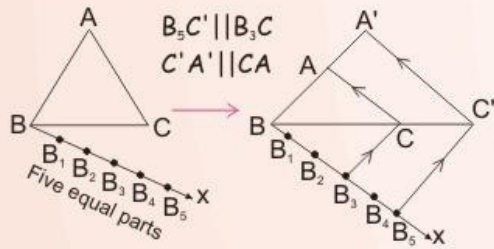


CONSTRUCTIONS

Triangle Scaling

SCALING

1. Scaling up $\frac{5}{3}$

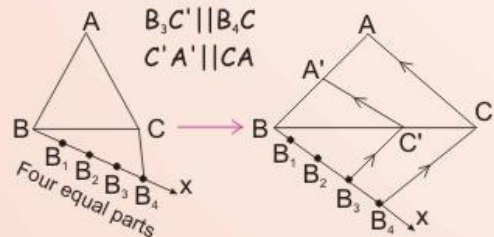


$$\triangle ABC \sim \triangle A'BC'$$

$$\frac{AB}{A'B} = \frac{AC}{A'C'} = \frac{BC}{B'C'}$$

$$\frac{BC'}{BC} = \frac{BB_5}{BB_3} = \frac{5}{3}$$

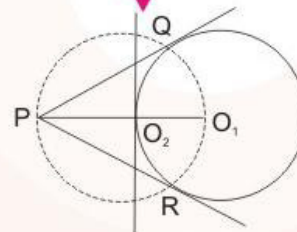
2. Scaling down $\frac{3}{4}$



$$\triangle ABC \sim \triangle A'BC'$$

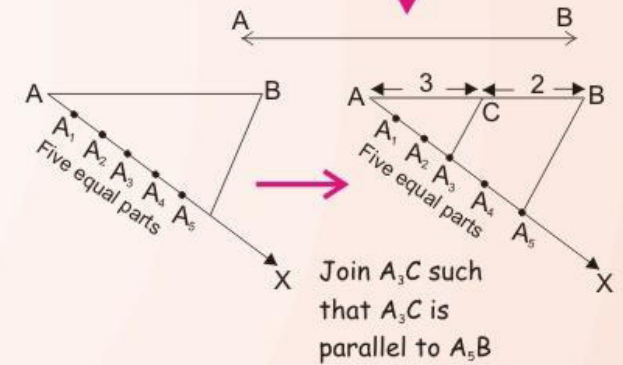
$$\frac{A'B}{AB} = \frac{A'C'}{AC} = \frac{B'C'}{BC} = \frac{3}{4}$$

Constructing Tangents



1. Join PO_1 and bisect it (at O_2)
2. O_2 as centre & O_1O_2 as radius draw a circle
3. 2 circles intersect at Q & R
4. Join PQ & PR (Tangents)

Division of a line segment in m:n(3:2)ratio

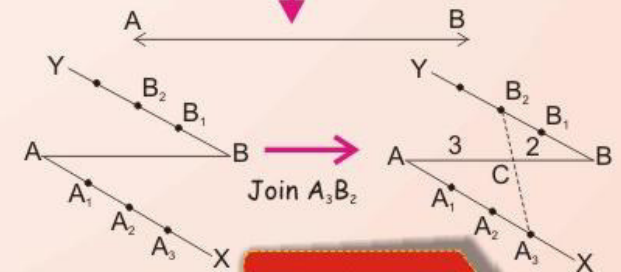


$$\triangle AA_3C \sim \triangle AA_5B$$

hence

$$\frac{AA_3}{A_3A_5} = \frac{AC}{CB} = \frac{3}{2}$$

Alternate-Method



$$\triangle AA_3C \sim \triangle BB_2C$$

$$\frac{AA_3}{BB_2} = \frac{AC}{BC} = \frac{3}{2}$$