Chapter 6
Triangles

CONGRUENT FIGURES

Two polygons are congruent if they are the same size and shape - that is, if their corresponding **angles** and sides are equal.

$\Delta ABC \equiv \Delta DEF$

SIMILAR FIGURES

- Two figures having the same shape but not necessary the same size are called similar figures.
- All congruent figures are similar but all similar figures are not congruent.

SIMILAR POLYGONS

Two polygons are said to be similar to each other, if:

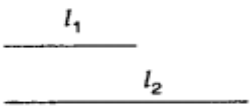
(i) Their number of sides are equal.

(ii) their corresponding angles are equal, and

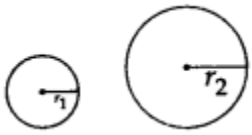
(iii) the lengths of their corresponding sides are proportional

Example:

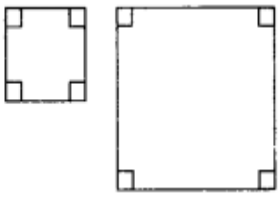
(a) Any two line segments are similar since length are proportional



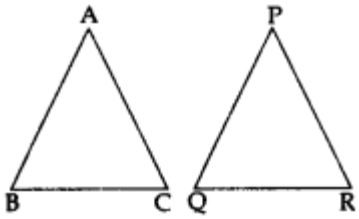
(b) Any two circles are similar since radii are proportional



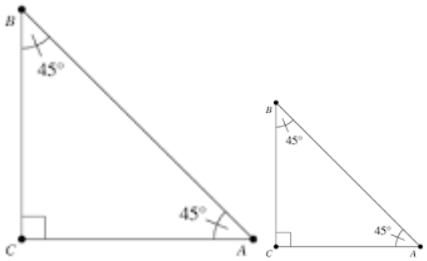
(c) Any two squares are similar since corresponding angles are equal and lengths are proportional.



(d) Any two equilateral triangles are similar since corresponding angles are equal and lengths are proportional.



(e) Any two Isoseles right angled triangles are similar since corresponding angles are equal and lengths are proportional.

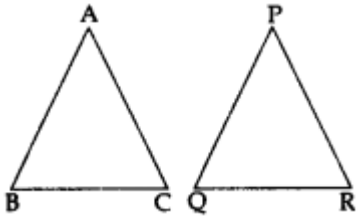


Note:

Similar figures are congruent if there is one to one correspondence between the figures.

∴ From above we deduce:

Any two triangles are similar, if their



(i) Corresponding angles are equal

∠A = ∠P

∠B = ∠Q

∠C = ∠R

(ii) Corresponding sides are proportional

$$\frac{AB}{PQ} = \frac{AC}{PR} = \frac{BC}{QR}$$