

Fig 7.13

**EXAMPLE 3** In Fig 7.13,  $AD = CD$  and  $AB = CB$ .

- State the three pairs of equal parts in  $\triangle ABD$  and  $\triangle CBD$ .
- Is  $\triangle ABD \cong \triangle CBD$ ? Why or why not?
- Does  $BD$  bisect  $\angle ABC$ ? Give reasons.

**SOLUTION**

- In  $\triangle ABD$  and  $\triangle CBD$ , the three pairs of equal parts are as given below:

$$AB = CB \text{ (Given)}$$

$$AD = CD \text{ (Given)}$$

$$\text{and } BD = BD \text{ (Common in both)}$$

- From (i) above,  $\triangle ABD \cong \triangle CBD$  (By SSS congruence rule)

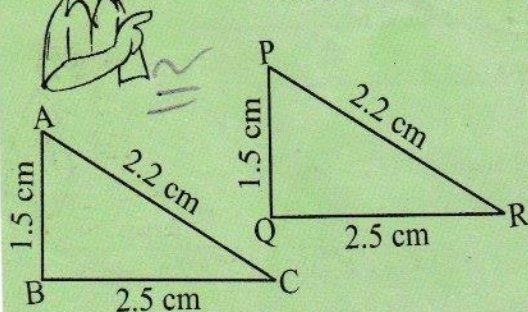
- $\angle ABD = \angle CBD$  (Corresponding parts of congruent triangles)

So,  $BD$  bisects  $\angle ABC$ .

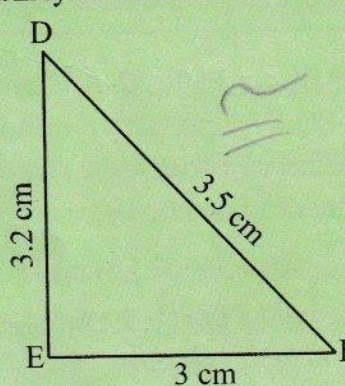
**TRY THESE**



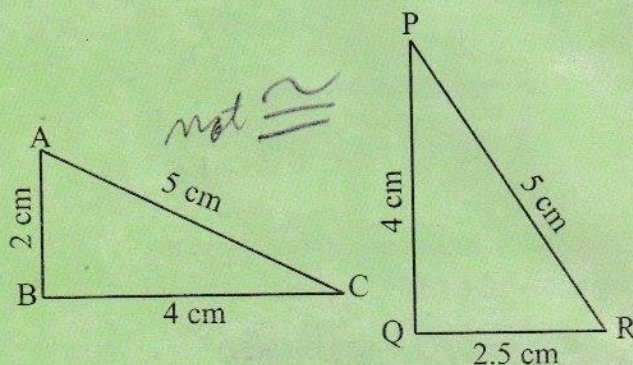
- In Fig 7.14, lengths of the sides of the triangles are indicated. By applying the congruence rule, state which pairs of triangles are congruent. In case of congruent triangles, write the result in symbolic form:



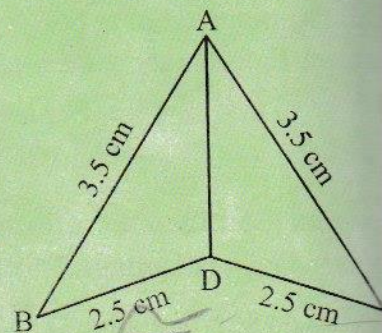
(i)



(ii)



(iii)



(iv)

Fig 7.14