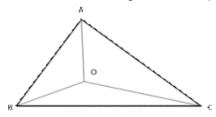


Exercise 5A

Question 44:

Given: ABC is a triangle and O is appoint inside it.



To Prove : (i) AB+AC > OB +OC (ii) AB+BC+CA > OA+OB+OC (iii) OA+OB+OC > 1/2 (AB+BC+CA)

Proof: (i) In \triangle ABC, AB+AC > BC(i) And in , \triangle OBC, OB+OC > BC(ii)

Subtracting (i) from (i) we get

(AB+AC) - (OB+OC) > (BC-BC)

i.e. AB+AC>OB+OC

(ii) AB+AC > OB+OC [proved in (i)]

Similarly, AB+BC > OA+OC

And AC+BC > OA +OB

Adding both sides of these three inequalities, we get (AB+AC) + (AC+BC) + (AB+BC) > OB+OC+OA+OB+OA+OC

i.e. 2(AB+BC+AC) > 2(OA+OB+OC)

Therefore, we have

AB+BC+AC > OA+OB+OC

(iii) In ΔOAB

OA+OB > AB(i)

In ΔOBC,

OB+OC > BC(ii)

And, in \triangle OCA,

OC+OA > CA

Adding (i), (ii) and (iii) we get

(OA+OB) + (OB+OC) + (OC+OA) > AB+BC+CA

i.e 2(OA+OB+OC) > AB+BC+CA

 \Rightarrow OA+OB+OC > 1/2 (AB+BC+CA)

Question 45:

Since AB=3cm and BC=3.5 cm

 \therefore AB+BC=(3+3.5) cm =6.5 m

And CA=6.5 cm

So AB+BC=CA

A triangle can be drawn only when the sum of two sides is greater than the third side.

So, with the given lengths a triangle cannot be drawn.

********** END ********