

## PARALLELOGRAM

The actions for constructing or building a parallelogram are closely the same as for a rectangle however, in the case of a parallelogram; the adjacent angles are now not right angles.

### EXAMPLE

(A) using rulers and compasses only, construct the parallelogram HIJK, with  $HI=8.5\text{cm}$ ,  $HK=6.6\text{cm}$  and angle  $KHI=60^\circ$

Show all construction lines clearly

(b) Let the point of intersection of the diagonals be represented by O  
Measure and state the length of:

(I) HO (ii) IO (iii) JO (IV) KO

State your observation.

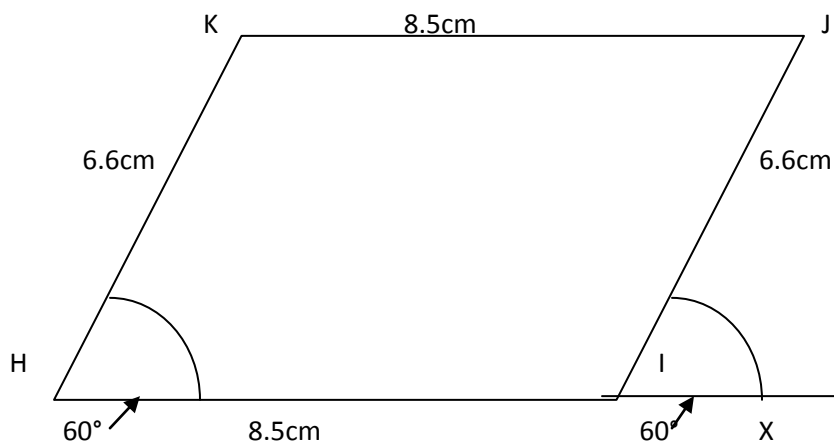
(c) Examine

(I)  $\Delta$ s HOI and JOK

(ii)  $\Delta$  HOK and JOI

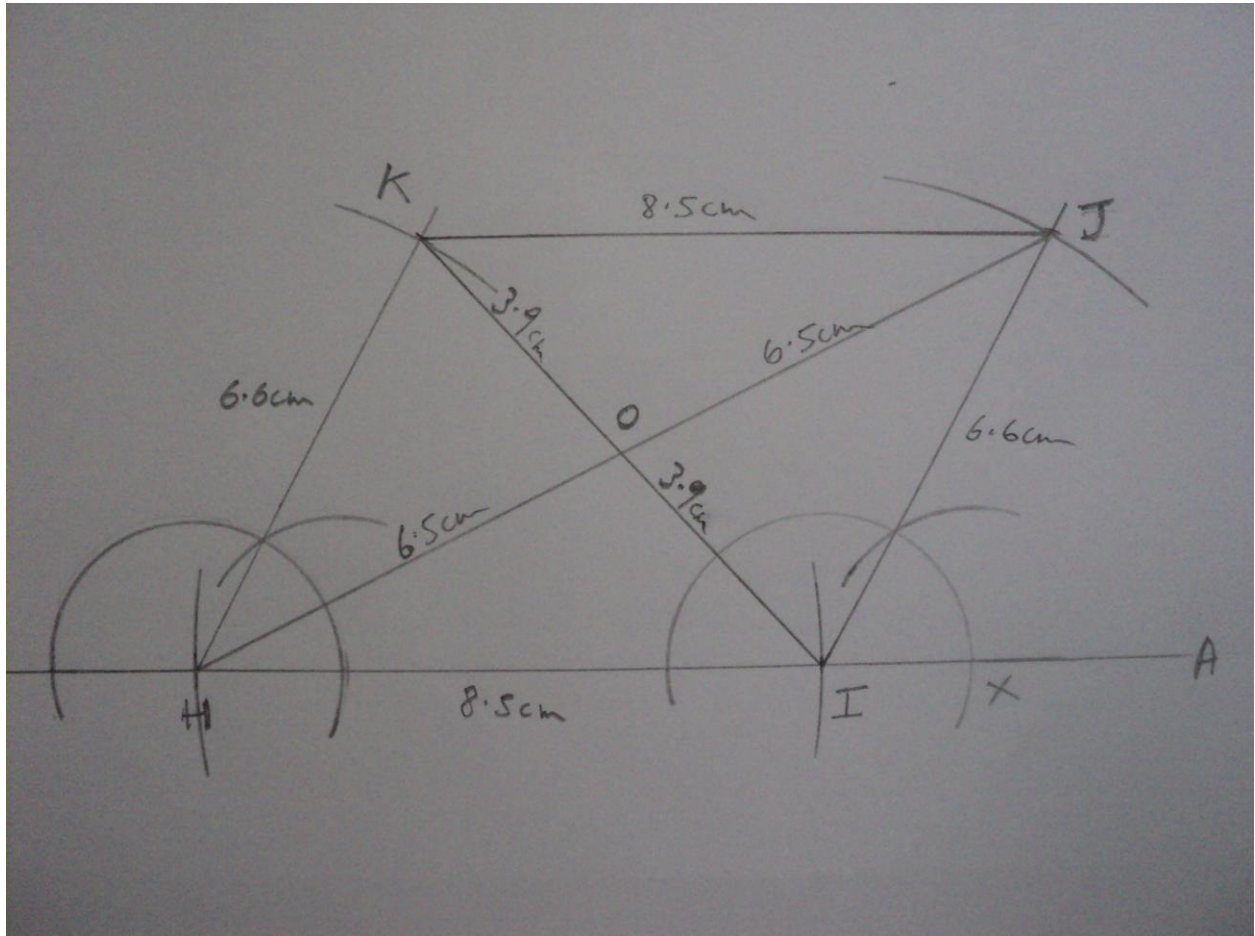
State your observation

Below can be seen the sketch of the parallelogram HIJK to be constructed



## CONSTRUCTION

In building the parallelogram angle  $KHI = JIX = 60^\circ$



(b) By measurement

(i) The length of HO=6.5cm

(ii) The length of IO=3.9cm

(iii) The length of JO=6.5cm

(iv) The length of KO=3.9cm

So HO=JO=6.5cm

And IO=KO=3.9cm

Hence the diagonals bisect each other.

(c) (i) Now  $\triangle HOI \cong \triangle JOK$  (S.S.S)

(ii) Now  $\triangle HOK \cong \triangle JOI$  (S.S.S)

Hence two pairs of congruent triangles are created by the diagonals