## Rhombus

The actions for constructing or building a rhombus are closely the same as for a parallelogram however, in the case of a rhombus, all four sides are equal.

## Example

a) Using rulers and compasses only, construct a rhombus HIJK with $\mathrm{HI}=9.5 \mathrm{~cm}$ and <KHI= $60^{\circ}$. Show all construction lines clearly.
b) Let the point of intersection of the diagonals be represented by 0 .

Measure and state the length of:
(i) HO
(ii) 10
(iii) JO
(iv) KO
(v)Measure and state the magnitude of angle HOI. State your observation.
c) Measure and state the magnitude of angles:
$\begin{array}{ll}\text { (i) } \mathrm{OHI} & \text { (ii) } \mathrm{OIH}\end{array}$
d) Examine $\Delta \mathrm{s}$ HOI, JOI, JOK and HOK.

State your observation.
Below can be seen the sketch of the rhombus HIJK to be built


Construction:
In constructing the rhombus, $<\mathrm{KHI}=<\mathrm{JIX}=60^{\circ}$ (corres. $<$ s). And the radius of the compasses is set to 9.5 cm to construct its sides.

b) By measurement:
(i) The length of $\mathrm{HO}=8.2 \mathrm{~cm}$
(ii) The length of $I O=4.75 \mathrm{~cm}$
(iii) The length of $\mathrm{JO}=8.2 \mathrm{~cm}$
(iv)The length of $\mathrm{KO}=4.75$

So $\mathrm{HO}=\mathrm{JO}=8.2 \mathrm{~cm}$
And $\mathrm{IO}=\mathrm{KO}=4.75 \mathrm{~cm}$
(v)The magnitude of angle $\mathrm{HOI}=90^{\circ}=1 \mathrm{rt} .<$

Hence the diagonals bisect each other at right angles.
c) By measurement:
(i) The magnitude of angle $\mathrm{OHI}=30^{\circ}$
(ii) The magnitude of angle $\mathrm{OIH}=60^{\circ}$

Hence the diagonals bisect the angles at the vertices.
d) Now $\Delta \mathrm{HOI} \equiv \triangle \mathrm{JOI} \equiv \triangle \mathrm{JOK} \equiv \triangle \mathrm{HOK}$ (S.S.S)

Hence four congruent triangles are formed by the diagonals.

