

In a right triangle, the **hypotenuse** is:

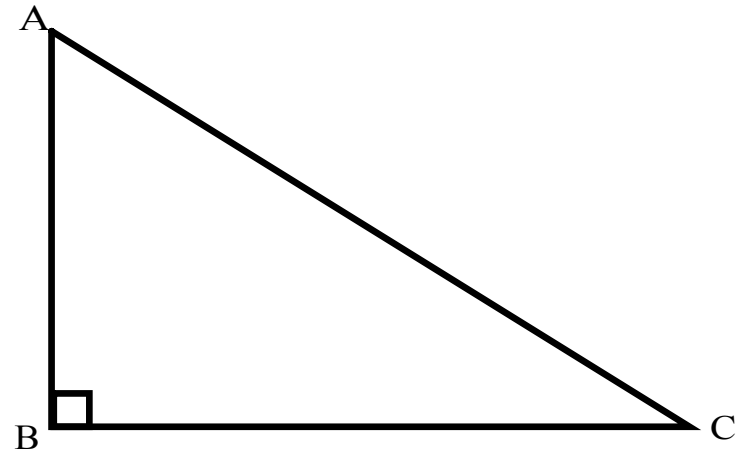
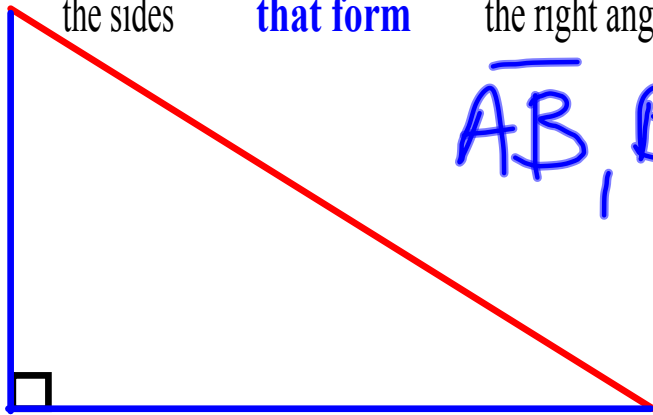
the side **opposite** the right angle

AC

The **legs** are:

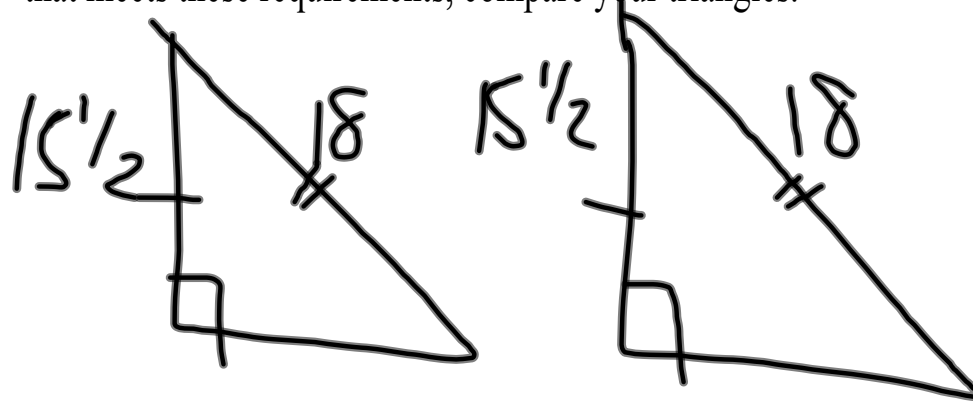
the sides **that form** the right angle

$\overline{AB}, \overline{BC}$



Using your geolegs,
create a **right** triangle with a **hypotenuse** of
18 cm and a **leg** of **15.5 cm** .

When someone sitting near you has also created a triangle
that meets these requirements, compare your triangles.



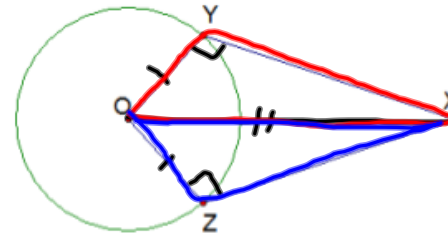
HL Postulate :

If there exists a correspondence between the vertices of two **right** triangles such that the **hypotenuse** and a **leg** of one triangle are congruent to the **corresponding parts** of the other triangle, then the two triangles are congruent.

Important Note :

The HL postulate applies only to right triangles. Thus, to use the HL postulate in a proof, we must first have established in our proof that the triangles are right triangles.

Given: $\odot O$,
 $\overline{YO} \perp \overline{YX}$,
 $\overline{ZO} \perp \overline{ZX}$
 Prove: $\overline{YX} \cong \overline{ZX}$



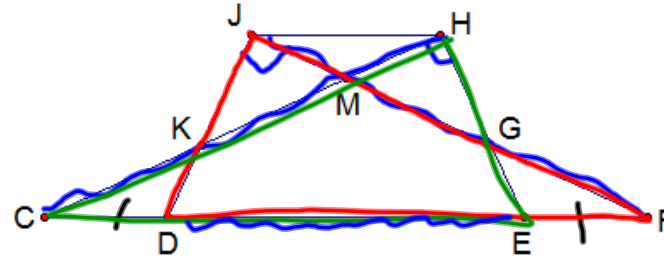
Statements	Reasons
1. $\odot O$, $\overline{YO} \perp \overline{YX}$, $\overline{ZO} \perp \overline{ZX}$	1. Given
2. $\overline{YO} \cong \overline{ZO}$	2. All radii in the same circle are \cong .
3. Draw \overline{OX}	3. 2 points determine a line.
4. $\angle OYX$, $\angle OZX$ are right \angle s	4. def. of \perp
5. $\overline{OX} \cong \overline{OX}$	5. Reflexive Prop.
6. $\triangle OYX$, $\triangle OZX$ are rt \triangle s	6. def. of rt. \triangle
7. $\triangle OYX \cong \triangle OZX$	7. HL
8. $\overline{YX} \cong \overline{ZX}$	8. CPCTC

Given: $\overline{CD} \cong \overline{EF}$
 $\overline{JF} \perp \overline{JD}$

$\overline{CH} \perp \overline{HE}$

$\overline{CH} \cong \overline{JF}$

Prove: $\overline{JD} \cong \overline{HE}$



Statements	Reasons
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1. $\overline{CD} \cong \overline{EF}$
 $\overline{JF} \perp \overline{JD}$

1. given

$\overline{CH} \perp \overline{JD}$

$\overline{CH} \cong \overline{JF}$

2. $\angle DJF, \angle EHC$

2. def of \perp

are rt. \angle s

3. $\triangle DJF, \triangle EHC$

3. def. of rt. \triangle

are rt. \triangle s

4. $\overline{CE} \cong \overline{DF}$

4. Addition

5. $\triangle DJF \cong$
 $\triangle EHC$

5. HL

6. $\overline{JD} \cong \overline{HE}$

6. CPCTC

