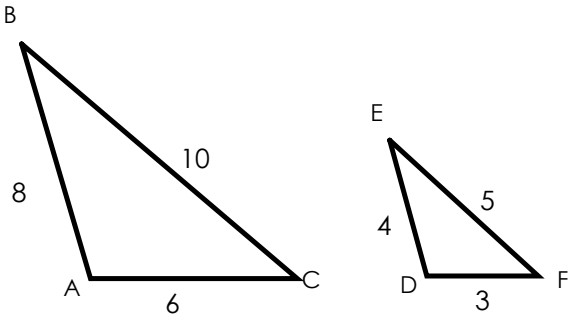
Level 3 Review - Similar Triangles

Facts about Similar Triangles

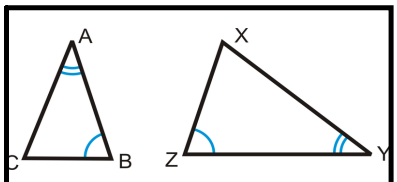
If two triangles are similar then we know....

1) All angles are congruent

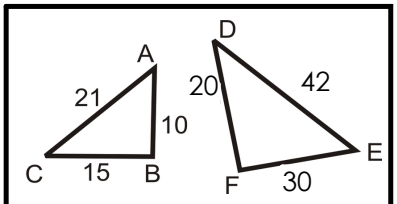
2) All sides have the same ratio



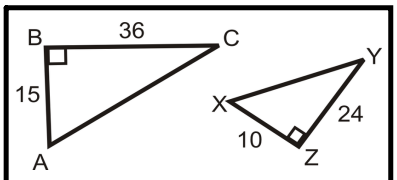
Proving Similarity



Angle - Angle (AA)



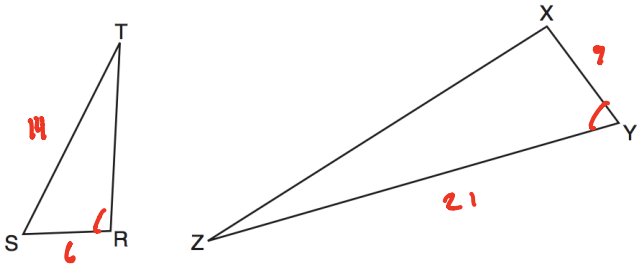
Side - Side - Side (SSS)



Side - Angle - Side (SAS)

Multiple Choice Practice

Triangles RST and XYZ are drawn below. If $RS = 6$, $ST = 14$, $XY = 9$, $YZ = 21$, and $\angle S \cong \angle Y$, is $\triangle RST$ similar to $\triangle XYZ$? Justify your answer.



Evidence

$\frac{21}{14} = \frac{3}{2}$

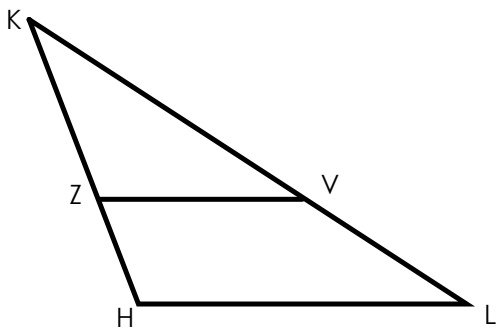
$\frac{9}{6} = \frac{3}{2}$

$\angle S \cong \angle Y$

Conclusion

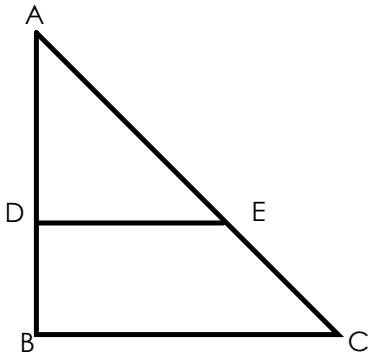
$\triangle RST \sim \triangle XYZ$

b/c SAS $\sim$



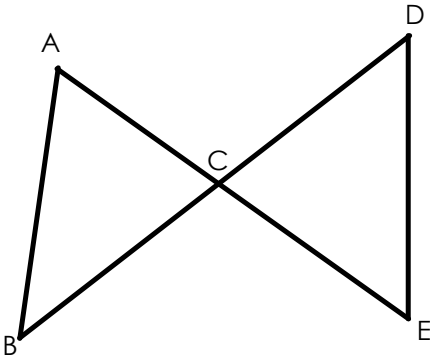
In the figure drawn below $\overline{ZV} \parallel \overline{HL}$. If $\overline{KZ} = 10$, $ZH = 15$, and $KV = 6$, what is the length of $\overline{KL}$?

15



In triangle ABC, $AD = 6$, $DB = 3$ and $DE = 10$. If $\overline{DE} \parallel \overline{BC}$, find the length of $\overline{BC}$

15

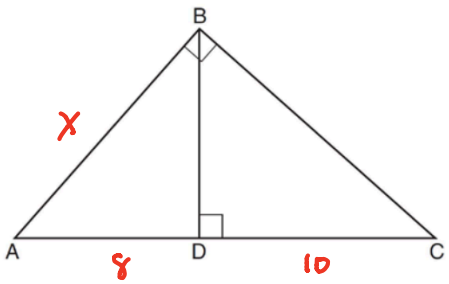


$AC = 8$, $BC = 12$, and CE 10. If $\angle BAC \cong \angle DEC$, find the length of CD.

15

Similar Right Triangles

In right triangle ABC shown below, altitude $\overline{BD}$ is drawn to hypotenuse $\overline{AC}$.



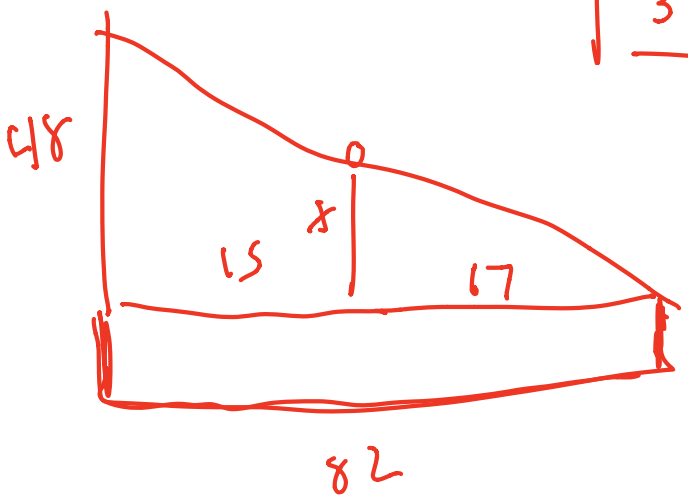
$AB = 12$

If $AD = 8$ and $DC = 10$, determine and state the length of $\overline{AB}$.

Word Problems

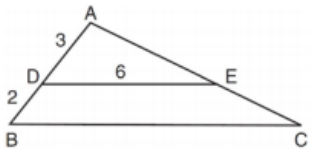
The base of a lamppost is 15 ft from a flagpole that is 48-ft feet high. The lamppost is shorter than the pole. At a certain time, their shadows end at the same point 82 ft from the base of the flagpole. How tall is the lamppost?

39.2



Multiple Choice Practice

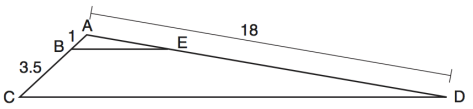
In the diagram of $\triangle ABC$ below, $\overline{DE} \parallel \overline{BC}$, $AD = 3$, $DB = 2$, and $DE = 6$.



What is the length of $\overline{BC}$?

1) 12
2) 10
3) 8
4) 4

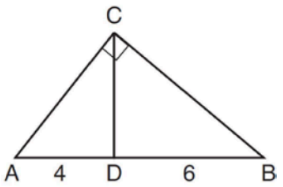
In the diagram below, triangle ACD has points B and E on sides $\overline{AC}$ and $\overline{AD}$, respectively, such that $\overline{BE} \parallel \overline{CD}$, $AB = 1$, $BC = 3.5$, and $AD = 18$.



What is the length of $\overline{AE}$, to the *nearest tenth*?

(1) 14.0
(2) 5.1
(3) 3.3
(4) 4.0

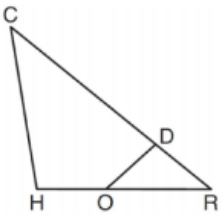
In the diagram of right triangle ABC, $\overline{CD}$ intersects hypotenuse $\overline{AB}$ at D.



If $AD = 4$ and $DB = 6$, which length of $\overline{AC}$ makes $\overline{CD} \perp \overline{AB}$?

1) $2\sqrt{6}$
2) $2\sqrt{10}$
3) $2\sqrt{15}$
4) $4\sqrt{2}$

In triangle CHR, O is on $\overline{HR}$, and D is on $\overline{CR}$ so that $\angle H \cong RDO$.



If $RD = 4$, $RO = 6$, and $OH = 4$, what is the length of $\overline{CD}$?

1) $2\frac{2}{3}$
2) $6\frac{2}{3}$
3) 11
4) 15