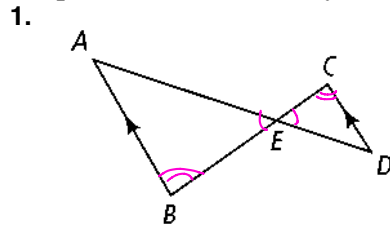


UNIT 5
ASSIGNMENT #8

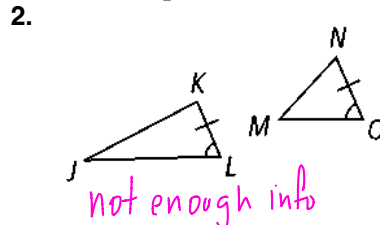
Practice writing proofs and solving word problems

OBJECTIVE: S.W.B.A.T. use proportions to write two column proofs and start setting up word problems given a diagram.

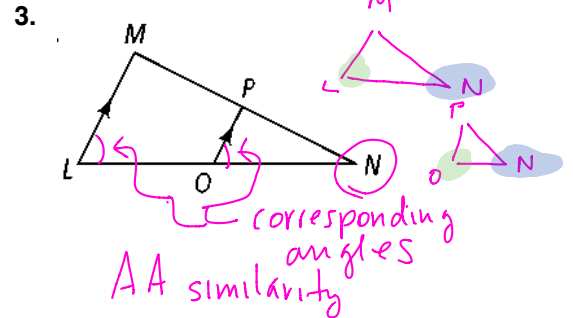
Determine whether the triangles are similar. If so, write a similarity statement and name the postulate or theorem you used. If not, explain.



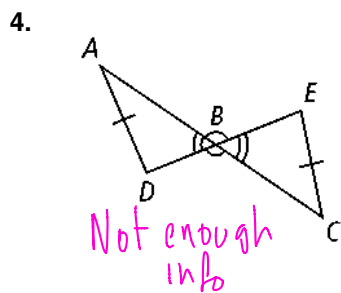
AA similarity



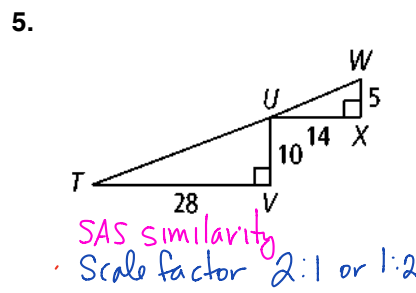
not enough info



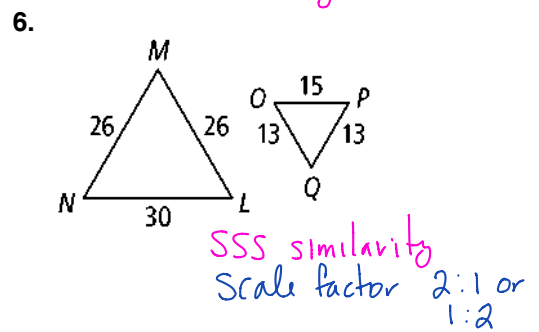
AA similarity
corresponding angles



Not enough info



SAS similarity
Scale factor 2:1 or 1:2

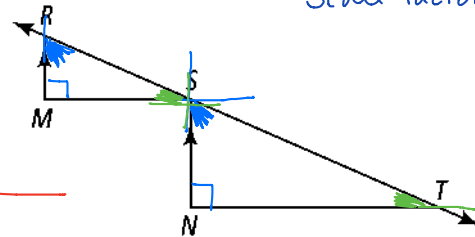


SSS similarity
Scale factor 2:1 or 1:2

7. Given: $\overline{RM} \parallel \overline{SN}$, $\overline{RM} \perp \overline{MS}$, $\overline{SN} \perp \overline{NT}$

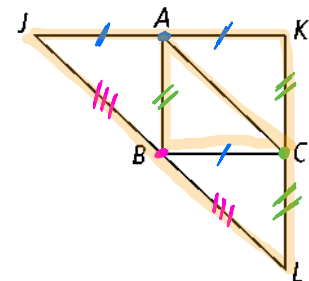
Prove: $\triangle RSM \sim \triangle STN$

STATEMENT	REASON
1) $\overline{RM} \parallel \overline{SN}$, $\overline{RM} \perp \overline{MS}$, $\overline{SN} \perp \overline{NT}$	1) Given
2) $\angle M = 90^\circ$ & $\angle N = 90^\circ$	2) Def of perpendicular lines
3) $\angle SRM \cong \angle TSN$	3) corresponding \angle 's
4) $\angle RSM \cong \angle STN$	4) corresponding \angle 's
5) $\triangle RSM \sim \triangle STN$	5) AA similarity



8. Given: \overline{A} bisects \overline{JK} , \overline{C} bisects \overline{KL} , \overline{B} bisects \overline{JL}

Prove: $\triangle JKL \sim \triangle CBA$



STATEMENT	REASON
1) \overline{A} bisects \overline{JK}	1) Given
2) $\overline{JA} \cong \overline{AK}$	2) Def of segment bisector
3) \overline{C} bisects \overline{KL}	3) Given
4) $\overline{KC} \cong \overline{CL}$	4) Def of segment bisector
5) \overline{B} bisects \overline{JL}	5) Given
6) $\overline{JB} \cong \overline{BL}$	6) Def of segment bisector
7) $\overline{AB} \cong \overline{BC} + \overline{BC} \cong \overline{AC}$	7) Def of inscribed \triangle 's
8) $\overline{AC} \cong \overline{JB} \cong \overline{BL}$	8) Def of midpoint in \triangle
9) $\triangle JKL \sim \triangle CBA$	9) SSS similarity

Explain why the triangles are similar. Then find the value of x .

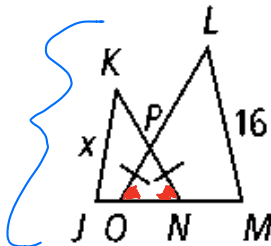
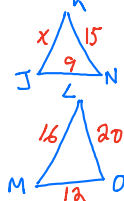
9. $OP \cong NP$, $KN = 15$,
 $LO = 20$, $JN = 9$,
 $MO = 12$

$$\frac{x}{16} = \frac{15}{20}$$

$$20x = (15)(16)$$

$$\frac{20x}{20} = \frac{240}{20}$$

$$x = 12$$



$$\frac{3x}{14} = \frac{4x-1}{18}$$

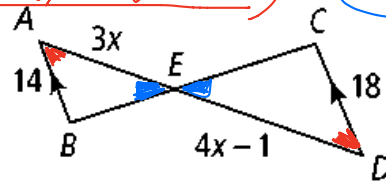
$$18(3x) = 14(4x-1)$$

$$54x = 56x - 14$$

$$-56x = -56x - 14$$

$$-2x = -14$$

$$x = 7$$



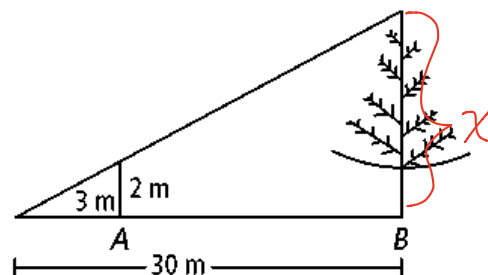
10. A stick 2 m long is placed vertically at point B . The top of the stick is in line with the top of a tree as seen from point A , which is 3 m from the stick and 30 m from the tree. How tall is the tree?

$$\frac{2}{3} = \frac{x}{30}$$

$$\frac{2(30)}{3} = \frac{3x}{3}$$

$$20 = x$$

the tree is 20 meters tall.



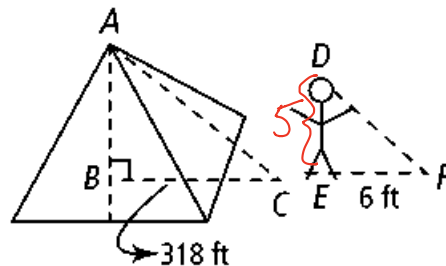
11. Thales was an ancient philosopher familiar with similar triangles. One story about him says that he found the height of a pyramid by measuring its shadow and his own shadow at the same time. If the person is 5-ft tall, what is the height of the pyramid in the drawing?

$$\frac{5}{6} = \frac{x}{318}$$

$$\frac{5(318)}{6} = \frac{6x}{6}$$

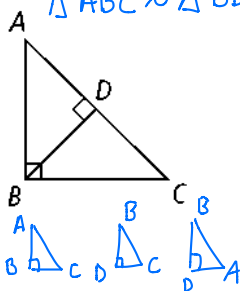
$$265 = x$$

the height of the pyramid is 265 feet.

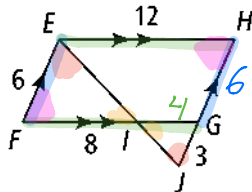


Identify the similar triangles in each figure. Explain.

12. $\triangle ABC \sim \triangle BDC \sim \triangle BDA$

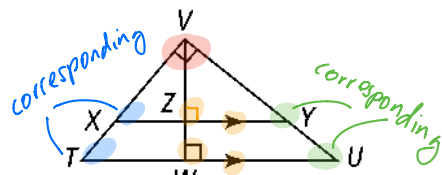


- 13.



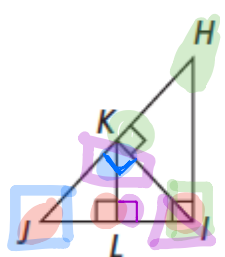
SAS similarity, ONLY
 $\triangle EFG \sim \triangle HGE$
 AA similarity; ONLY
 $\triangle EFG \sim \triangle HGE$

- 14.



By AA similarity
 $\triangle VZY \sim \triangle VWU$
 $\triangle VZX \sim \triangle VWT$
 $\triangle VXY \sim \triangle VTU$

- 15.



By AA similarity
 $\triangle KLI \sim \triangle HIL$
 $\triangle HKI \sim \triangle HIL$
 $\triangle IKJ \sim \triangle KLI$
 $\triangle KLI \sim \triangle JKI$