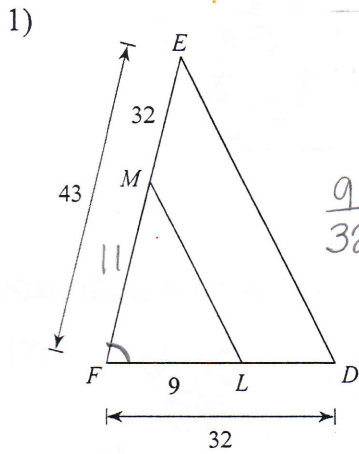


Proving Triangles Congruent and Similar--REVIEW

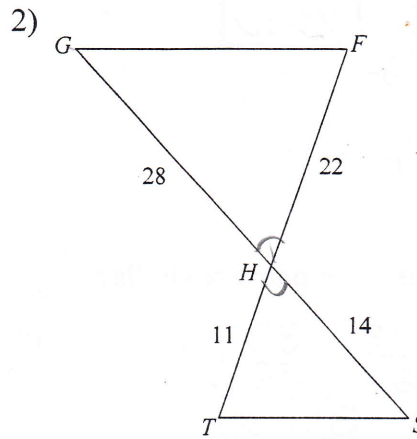
State if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.



$$\frac{9}{32} \neq \frac{11}{43}$$

$\triangle FED \sim$  \_\_\_\_\_

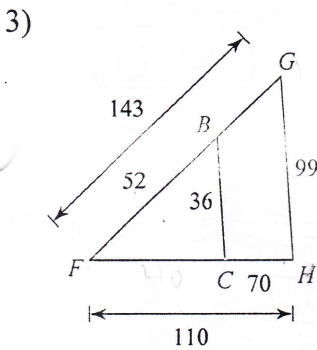
not  $\sim$



$$\frac{14}{28} = \frac{11}{22}$$

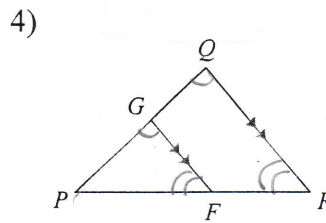
yes, SAS  $\sim$

$\triangle HGF \sim \triangle HST$



$$\frac{52}{143} = \frac{36}{99} = \frac{40}{110}$$

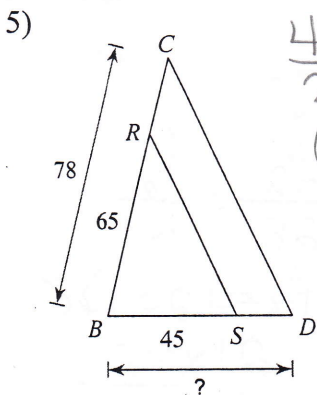
$\triangle FGH \sim \triangle FBC$  yes, SSS  $\sim$



yes AA  $\sim$

$\triangle PQR \sim \triangle PGF$

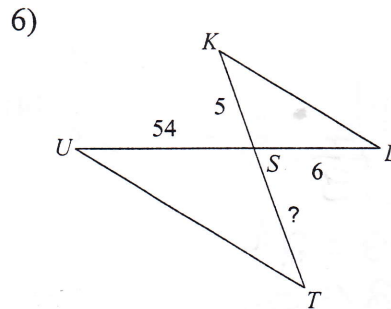
Find the missing length. The triangles in each pair are similar.



$$\frac{45}{x} = \frac{65}{78}$$

$$65x = 3510$$

$$x = 54$$

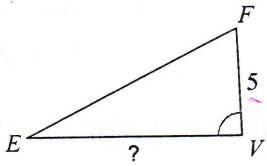


$$\frac{5}{x} = \frac{6}{54}$$

$$6x = 270$$

$$x = 45$$

7)

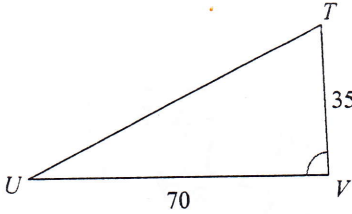


$$\frac{5}{35} = \frac{x}{70}$$

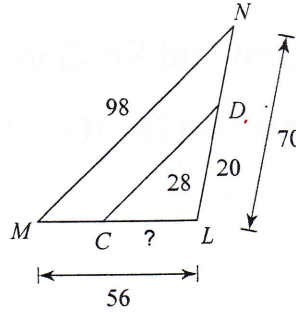
$$\frac{1}{7} = \frac{x}{70}$$

$$7x = 70$$

$$\boxed{x=10}$$



8)



$$\frac{20}{70} = \frac{x}{56}$$

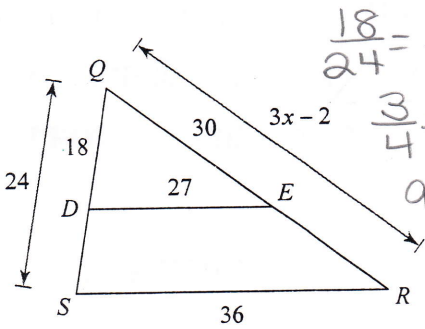
$$\frac{2}{7} = \frac{x}{56}$$

$$112 = 7x$$

$$\boxed{x=16}$$

Solve for x. The triangles in each pair are similar.

9)



$$\frac{18}{24} = \frac{30}{3x-2}$$

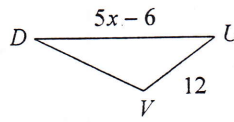
$$\frac{3}{4} = \frac{30}{3x-2}$$

$$9x-6 = 120$$

$$9x = 126$$

$$\boxed{x=14}$$

10)



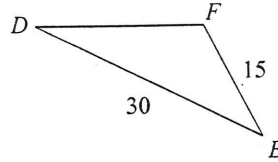
$$\frac{12}{15} = \frac{5x-6}{30}$$

$$\frac{4}{5} = \frac{5x-6}{30}$$

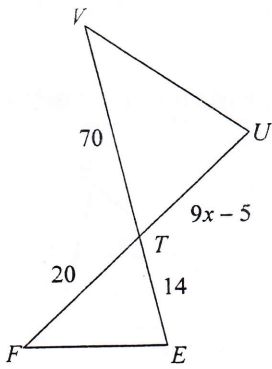
$$25x-30 = 120$$

$$25x = 150$$

$$\boxed{x=6}$$



11)



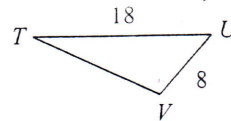
$$\frac{9x-5}{14} = \frac{70}{20}$$

$$180x-100 = 980$$

$$180x = 1080$$

$$\boxed{x=6}$$

12)



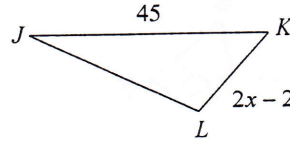
$$\frac{18}{45} = \frac{8}{2x-2}$$

$$\frac{2}{5} = \frac{8}{2x-2}$$

$$4x-4 = 40$$

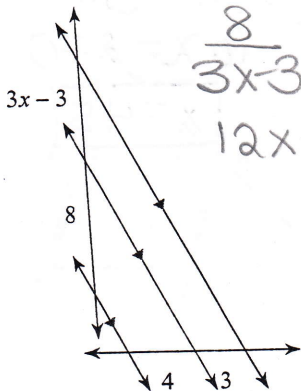
$$4x = 44$$

$$\boxed{x=11}$$



Solve for x.

13)



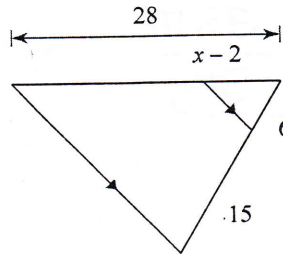
$$\frac{8}{3x-3} = \frac{4}{3}$$

$$12x-12 = 24$$

$$12x = 36$$

$$\boxed{x=3}$$

14)

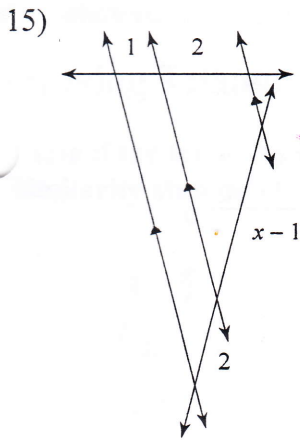


$$\frac{x-2}{28} = \frac{6}{21}$$

$$21x-42 = 168$$

$$21x = 210$$

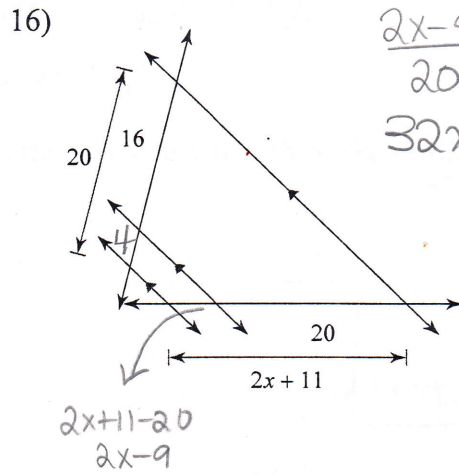
$$\boxed{x=10}$$



$$\frac{2}{1} = \frac{x-1}{2}$$

$$x-1=4$$

$$\boxed{x=5}$$



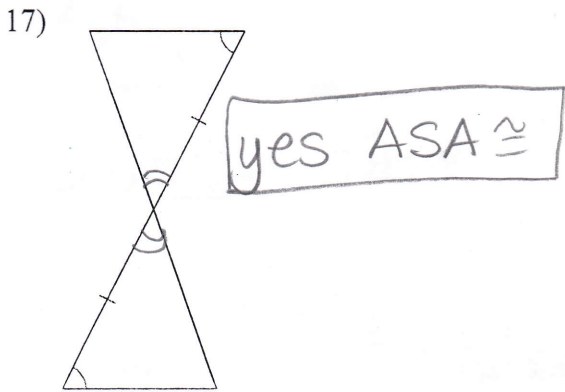
$$\frac{2x-9}{20} = \frac{4}{16}$$

$$32x - 144 = 80$$

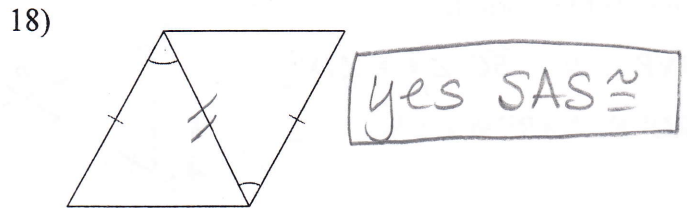
$$32x = 224$$

$$\boxed{x=7}$$

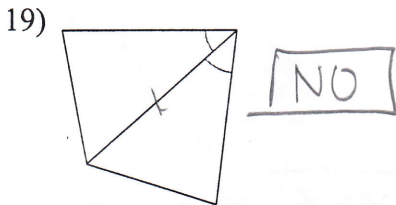
State if the two triangles are congruent. If they are, state how you know.



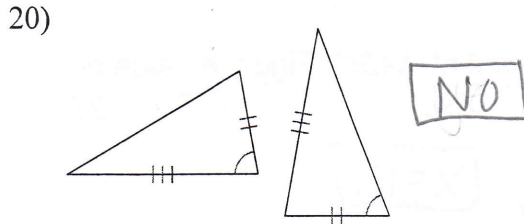
yes ASA  $\cong$



yes SAS  $\cong$



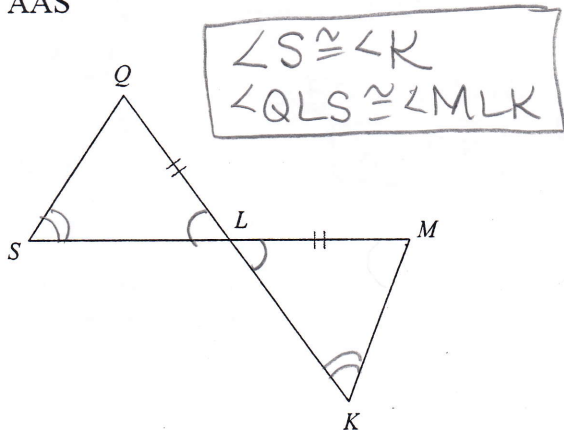
NO



NO

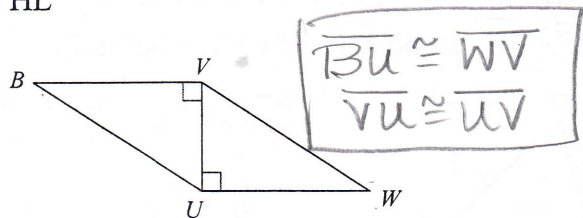
State what additional information is required in order to know that the triangles are congruent for the reason given.

21) AAS



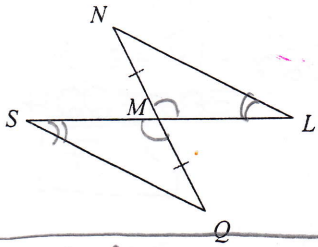
$\angle S \cong \angle K$   
 $\angle QLS \cong \angle MLK$

22) HL



$\overline{BV} \cong \overline{WV}$   
 $\overline{VU} \cong \overline{VU}$

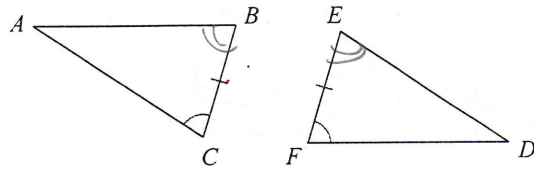
23) AAS



$$\angle L \cong \angle S$$

$$\angle SMQ \cong \angle LMN$$

24) ASA

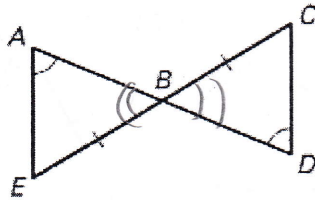


$$\angle B \cong \angle E$$

25. Proof Write a proof.

**GIVEN:**  $\overline{BE} \cong \overline{BC}$ ,  $\angle A \cong \angle D$

**PROVE:**  $\triangle ABE \cong \triangle DBC$



Statements

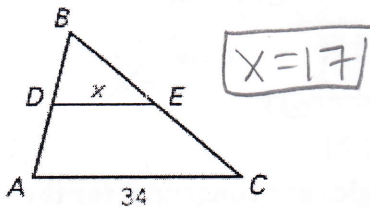
1.  $\overline{BE} \cong \overline{BC}$
2.  $\angle A \cong \angle D$
3.  $\angle ABE \cong \angle DBC$
4.  $\triangle ABE \cong \triangle DBC$

Reasons

1. Given
2. Given
3. Vertical  $\angle$ 's are  $\cong$
4. AAS  $\cong$

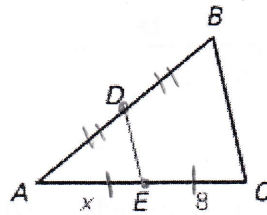
$\overline{DE}$  is the midsegment of  $\triangle ABC$ . Find the value of x.

26.



$$x = 17$$

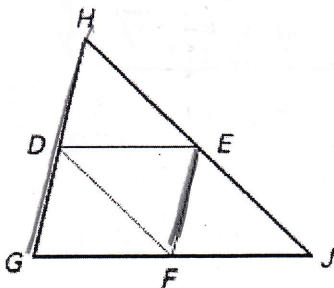
27.



$$x = 8$$

28. Use  $\triangle GHJ$  where D, E, and F are midpoints of the sides.

If  $\overline{EF} = 3x - 1$  and  $\overline{GH} = 5x + 3$ , what is EF?



$$3x - 1 = \frac{1}{2}(5x + 3)$$

$$6x - 2 = 5x + 3$$

$$x = 5$$

$$EF = 3(5) - 1$$

$$EF = 15 - 1$$

$$EF = 14$$