

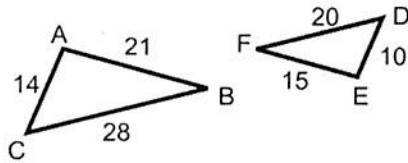
CHECK YOUR UNDERSTANDING

Directions: Work with a partner and complete all problems. Show your work.

Target 6B: Determine that two figures are similar using AA, SSS, and SAS similarity by verifying that angle measure is preserved and corresponding sides are proportional and use to make conclusions.

1. Determine if the triangles are similar. If they are, determine the similarity postulate (AA~, SAS~, or SSS~) and give the similarity statement. If they are not similar, write "Not Possible" and explain why.

a)



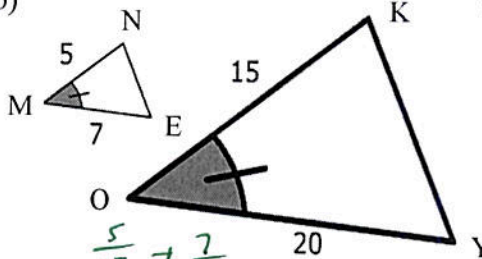
$$\begin{aligned} 14 &\leftrightarrow 10 \\ 21 &\leftrightarrow 15 \\ 28 &\leftrightarrow 20 \end{aligned}$$

$$\frac{14}{10} = \frac{21}{15} = \frac{28}{20}$$

$$1.4 = 1.4 = 1.4$$

Yes, $\triangle ABC \sim \triangle FED$ by SSS~

b)



$$\frac{5}{15} \neq \frac{7}{20}$$

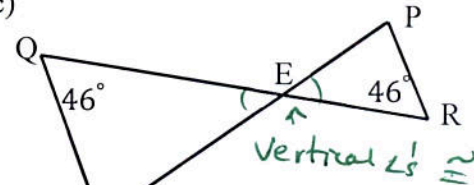
$$0.\bar{3} \neq 0.35$$

"Looks like" SAS~

But NOT POSSIBLE (NOT~)

since ratio of corresponding sides is NOT equal.

c)



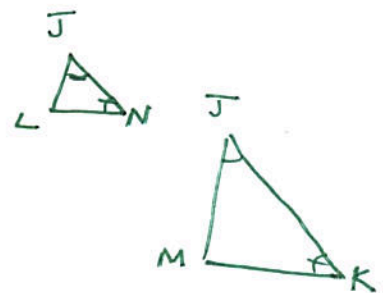
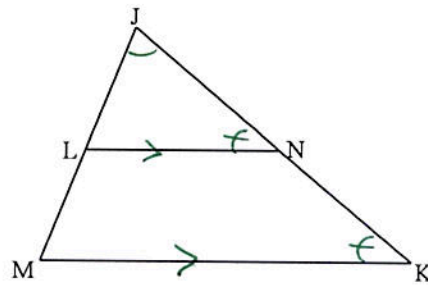
$$\begin{aligned} \angle Q &\cong \angle R \\ \angle QES &\cong \angle RES \end{aligned}$$

So $\triangle QES \sim \triangle REP$
by AA~

2. Fill in the blanks of the two column proof.

Given: $\overline{LN} \parallel \overline{MK}$

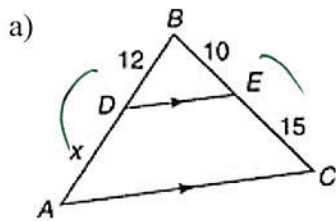
Prove: $\triangle JLN \sim \triangle JMK$



Statement	Reason
1. $\overline{LN} \parallel \overline{MK}$	1. Given
2. $\angle JNL \cong \angle JKM$	2. \parallel lines \Rightarrow corresponding \angle 's \cong
3. $\angle J \cong \angle J$	3. Reflexive Property of Δ 's
4. $\triangle JLN \sim \triangle JMK$	4. AA~

Target 6C: Apply theorems, postulates, or definitions to find missing values.

3. Find the value of x in the given diagram. Show work by setting up a proportion and solving it.

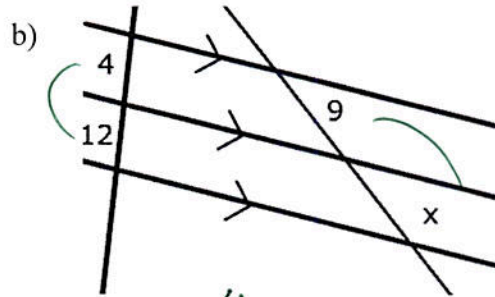


$$\frac{12}{x} \neq \frac{10}{15}$$

$$\boxed{18 = x}$$

$$12 \cdot 15 = 10x$$

$$\frac{180}{10} = \frac{10x}{10}$$



$$\frac{4}{12} \neq \frac{9}{x}$$

$$4x = 12 \cdot 9$$

$$\frac{4x}{4} = \frac{108}{4}$$

$$\boxed{x = 27}$$

4. The pair of triangles are similar. Find the value of x in the given diagram. Show work by setting up a proportion and solving it.

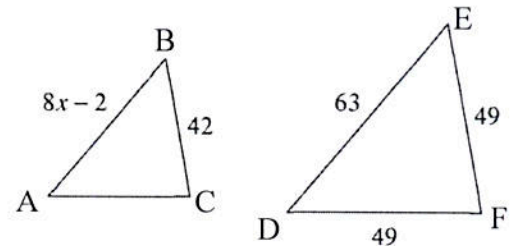
$$\frac{8x-2}{63} \neq \frac{42}{49}$$

$$49(8x-2) = 63 \cdot 42$$

$$\begin{array}{r} 392x - 98 = 2646 \\ +98 \quad +98 \\ \hline \end{array}$$

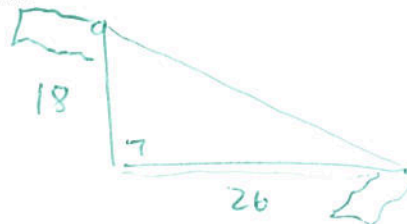
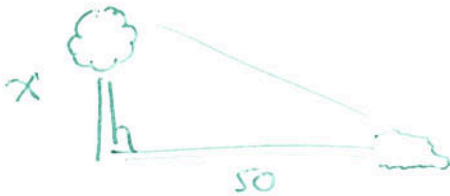
$$\frac{392x = 2744}{392} \quad \boxed{x = 7}$$

$$\overline{\overline{\Delta ABC}} \sim \overline{\overline{\Delta DEF}}$$



5. Fred observed that a tree was casting a 50 meter shadow. A nearby 18 meter-high flagpole was casting a 26 meter shadow. (2 points)

a) Draw a diagram that models the situation.



b) Set-up a proportion that models this situation. Determine the height of the tree. Round your answer to the nearest hundredth.

$$\frac{x}{18} \neq \frac{50}{26}$$

$$26x = 18 \cdot 50$$

$$\frac{26x}{26} = \frac{900}{26}$$

$$x = 34.62$$

So the tree is 34.62 meters