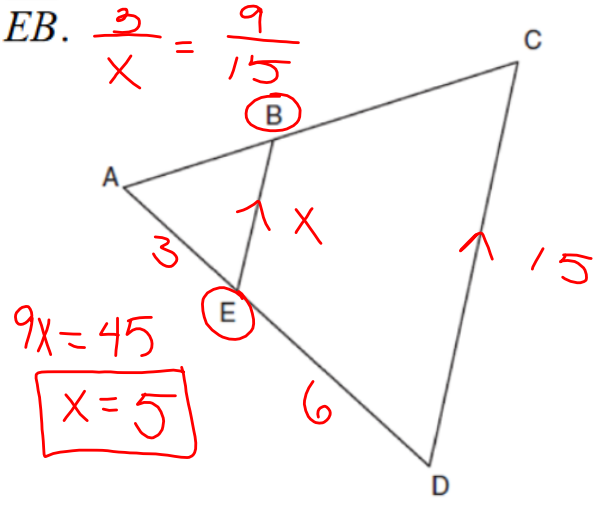
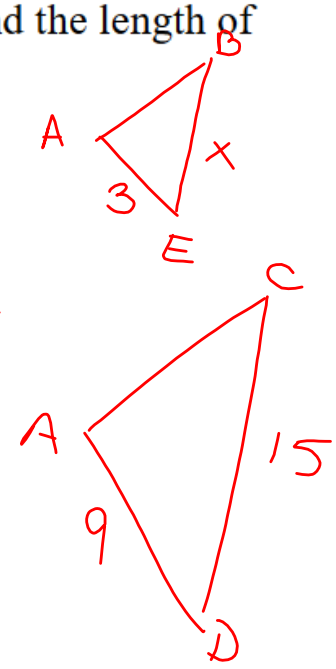
DO NOW

In the diagram below of $\triangle ACD$, E is a point on $\overline{AD}$ and B is a point on $\overline{AC}$, such that $\overline{EB} \parallel \overline{DC}$. If $AE = 3$, $ED = 6$, and $DC = 15$, find the length of $\overline{EB}$. $\frac{3}{x} = \frac{9}{15}$



$9x = 45$

$x = 5$



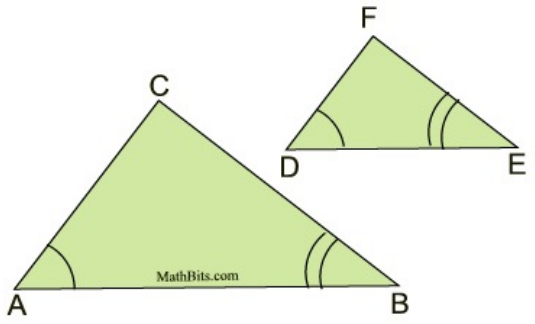
Angle -Angle Similarity

If two angles of one triangle are congruent to the corresponding angles of another triangle

If: $\angle A \cong \angle D$ and $\angle B \cong \angle E$

Then: $\Delta ABC \sim \Delta DEF$

by AA~



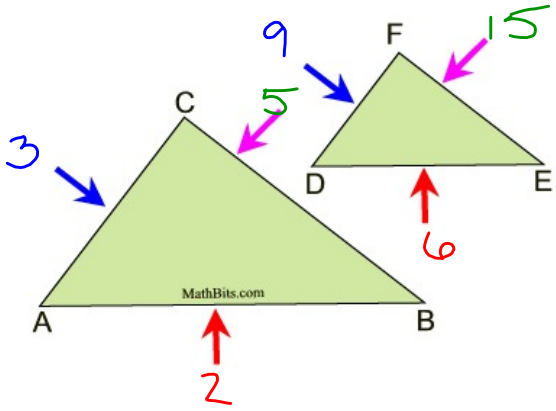
Side-Side-Side Similarity

If the three sets of corresponding sides of two triangles are in proportion

If: $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$

Then: $\Delta ABC \sim \Delta DEF$

by SSS~



$\frac{2}{6} = \frac{3}{9} = \frac{5}{15}$

$\frac{1}{3}$

Side-Angle-Side Similarity

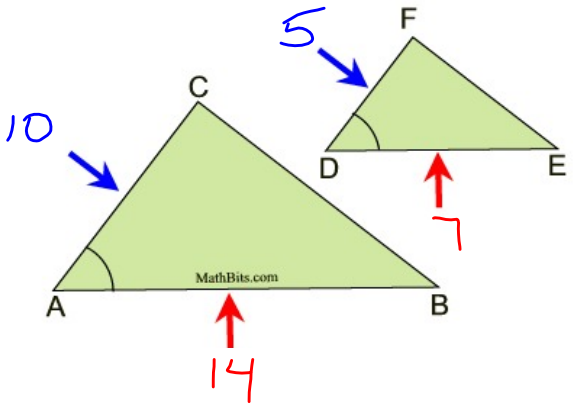
If two sets of corresponding sides are in proportion and the angles they include are congruent.

If: $\frac{AB}{DE} = \frac{AC}{DF}$

and $\angle A \cong \angle D$

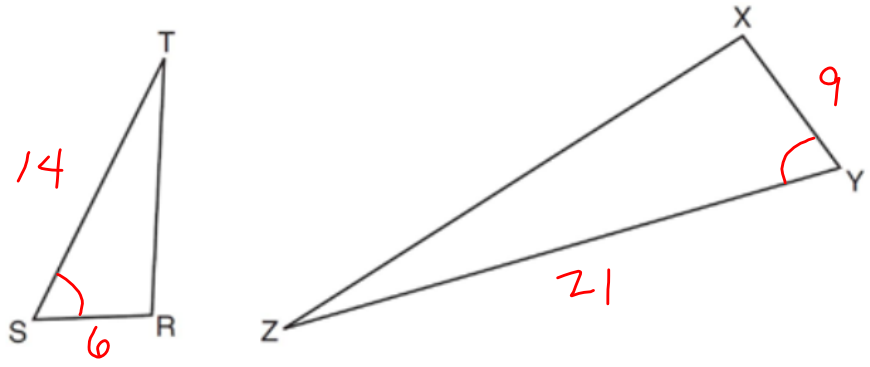
Then: $\Delta ABC \sim \Delta DEF$

by SAS~



$\frac{10}{5} = \frac{14}{7}$

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.



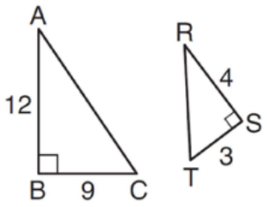
Yes by SAS~

$\frac{14}{6} = \frac{21}{9}$ OR $\frac{14}{21} = \frac{6}{9}$

$\sqrt{126 = 126}$ $\frac{2}{3} = \frac{2}{3}$ $\sqrt{}$

Determine if the triangles are similar. If yes, state which type of similarity the triangles have (AA, SAS or SSS)

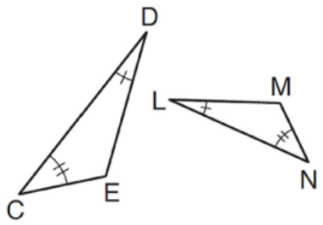
1)



Yes by SAS~

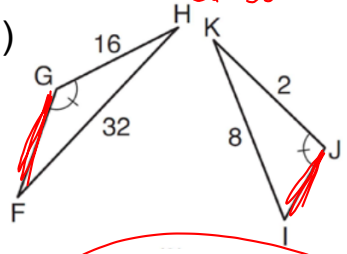
$\frac{4}{3} = \frac{12}{9}$

2)



Yes by AA~

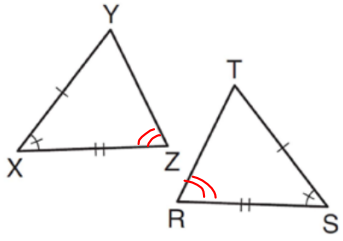
3)



$36 = 36\sqrt{}$

Not similar

4)



Yes