

AA, SSS, SAS, Similarity

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

1)   
 Proportional Sides  $\frac{12}{6} = \frac{6}{3} = 2 = 2$    
 Congruent  $\angle$ 's  $\angle CFB \cong \angle HFG$  by vertical angles   
 $\triangle FGH \sim \triangle FBC$  by SAS

2)   
 Proportional Sides  $\frac{39}{25} \neq \frac{29}{20} \neq \frac{21}{14}$    
 $1.56 \neq 1.45 \neq 1.5$    
 Not Similar   
 $\triangle UTS \not\sim \triangle LMN$

3)   
 Congruent  $\angle$ 's  $\angle Q \cong \angle U$    
 $\angle PTQ \cong \angle VTU$  by vertical  $\angle$ 's   
 $\triangle TUV \sim \triangle TQP$  by AA

4)   
 Proportional Sides  $\frac{70}{8} \neq \frac{120}{12}$    
 $8.75 \neq 10$    
 $\triangle RST \not\sim \triangle RLM$

5)   
 Proportional Sides  $\frac{63}{27} = \frac{42}{18} = \frac{35}{15} = \frac{7}{3}$    
 $\frac{7}{3} = \frac{7}{3} = \frac{7}{3}$    
 $\triangle DCB \sim \triangle KLM$  by SSS

6)   
 proportional sides  $\frac{60}{18} = \frac{80}{24} = \frac{70}{21}$    
 $\frac{10}{3} = \frac{10}{3} = \frac{10}{3}$    
 $\triangle QRS \sim \triangle QUV$  by SSS

7)   
 Proportional Side  $\frac{44}{11} \neq \frac{37}{9} \neq \frac{19}{5}$    
 $4 \neq 4.11 \neq 3.8$    
 $\triangle STU \not\sim \triangle GSH$

8)   
 proportional sides  $\frac{81}{45} = \frac{36}{20}$    
 $\frac{9}{5} = \frac{9}{5}$    
 Congruent angles  $\angle DFE \cong \angle WFW$    
 Reflexive Property   
 $\triangle FED \sim \triangle VWF$

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

9)

$\frac{16}{8} = \frac{18}{x}$   
 $16x = 144$   
 $x = 9$

10)

$\frac{40}{24} = \frac{x}{33}$   
 $24x = 1320$   
 $x = 55$

11)

$\frac{24}{x} = \frac{16}{8}$   
 $16x = 192$   
 $x = 12$

12)

$\frac{x}{24} = \frac{48}{88}$   
 $48x = 2112$   
 $x = 44$

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

13)

$\frac{56}{32} = \frac{28x}{48}$   
 $896x = 2688$   
 $x = 3$

14)

$\frac{4x+8}{4} = \frac{64}{8}$   
 simplify  
 $x+2 = 8$   
 $x = 6$  (you could also cross multiply)

15)

$\frac{x+2}{18} = \frac{10}{20}$   
 simplify  
 $\frac{x+2}{18} = \frac{1}{2}$   
 $2(x+2) = 18$   
 $2x+4 = 18$   
 $2x = 14$   
 $x = 7$

16)

$\frac{36}{11x+5} = \frac{18}{30}$   
 simplify  
 $\frac{36}{11x+5} = \frac{3}{5}$   
 $9(11x+5) = 540$   
 $99x+45 = 540$   
 $99x = 495$   
 $x = 5$