

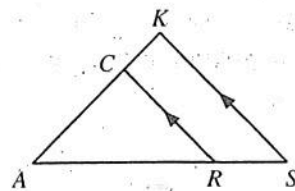
A Postulate for Similar Triangles

For use after Section 7-4

Refer to the diagram and complete.

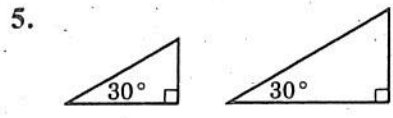
- $\triangle CAR \sim \triangle$ KAS
- $\angle S \cong \angle$ CRA

- $\frac{CR}{KS} = \frac{?}{AK}$ AC
- $\frac{SK}{RC} = \frac{AS}{?}$ AR

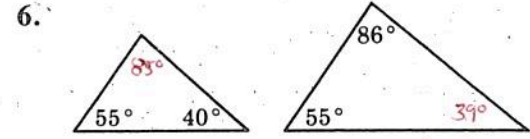


Exs. 1-4

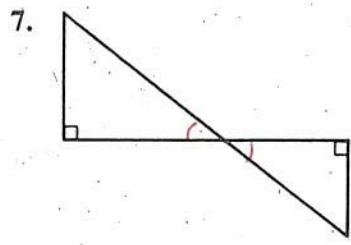
Tell whether the triangles are similar or not similar.



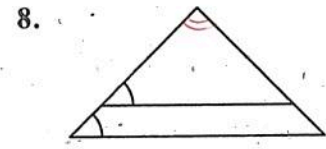
Similar by AA~



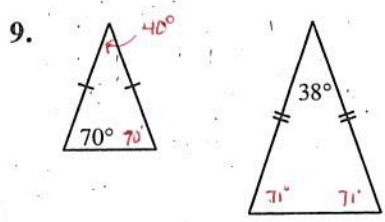
Not Similar



Similar by AA~

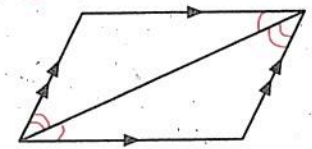


Similar by AA~



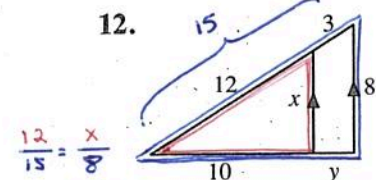
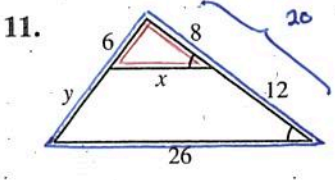
Not Similar

Challenge Problem
★ 10.



Similar by AA~

Similar triangles are shown. Find the values of x and y.



$$\frac{8}{20} = \frac{x}{26}$$

$$\frac{8}{20} = \frac{6}{6+y}$$

$$48 + 8y = 120$$

$$8y = 72$$

$$y = 9$$

$x =$ 10.4
 $y =$ 9

$$\frac{12}{15} = \frac{x}{8}$$

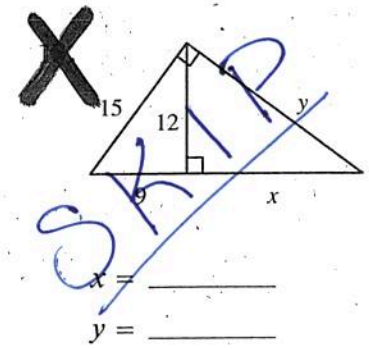
$$\frac{12}{15} = \frac{10}{10+y}$$

$$120 + 12y = 150$$

$$12y = 30$$

$$y =$$

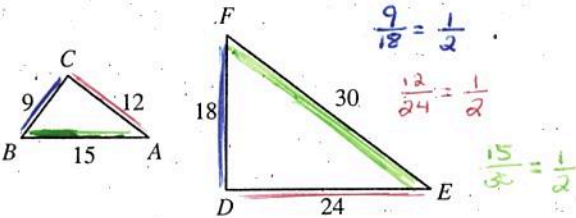
$x =$ 6.4
 $y =$ 2.5

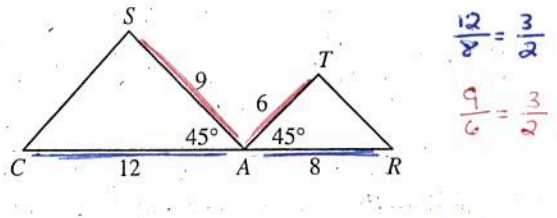


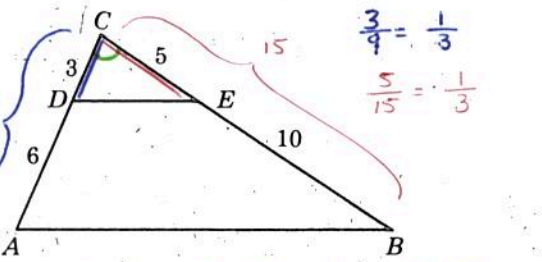
Theorems for Similar Triangles

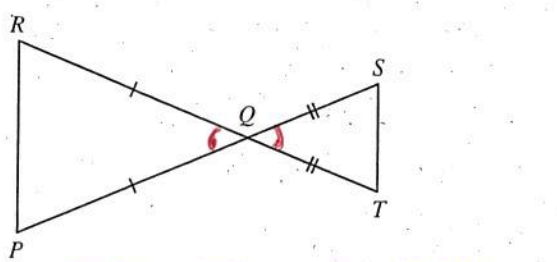
For use after Section 7-5

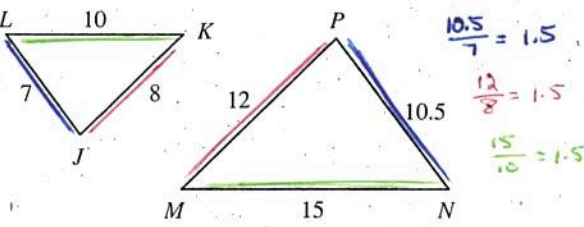
In Exercises 1-6 name two similar triangles. Also name the theorem or postulate that justifies your answer.

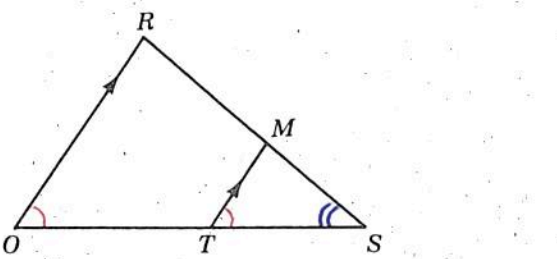
1.  $\frac{9}{18} = \frac{1}{2}$
 $\frac{12}{24} = \frac{1}{2}$
 $\frac{15}{30} = \frac{1}{2}$
 $\triangle ABC \sim \triangle FED$ by SSS

2.  $\frac{12}{8} = \frac{3}{2}$
 $\frac{9}{6} = \frac{3}{2}$
 $\triangle ACS \sim \triangle ART$ by SAS

3.  $\frac{3}{5} = \frac{3}{5}$
 $\frac{6}{10} = \frac{3}{5}$
 $\triangle ABC \sim \triangle DEC$ by SAS

4. 
 $\triangle RQP \sim \triangle SQT$ by SAS

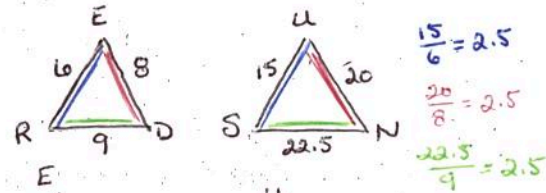
5.  $\frac{10.5}{7} = 1.5$
 $\frac{12}{8} = 1.5$
 $\frac{15}{10} = 1.5$
 $\triangle PMN \sim \triangle JKL$ by SSS

6.  $\frac{15}{6} = 2.5$
 $\frac{20}{8} = 2.5$
 $\frac{22.5}{9} = 2.5$
 $\triangle STM \sim \triangle SOR$ by AA

The lengths of the sides of $\triangle RED$ and $\triangle SUN$ are given.

7. $RE = 6, ED = 8, RD = 9, SU = 15, UN = 20, SN = 22.5$

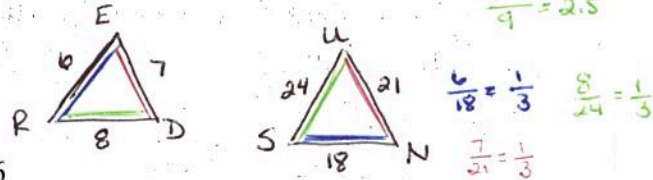
Are the triangles similar? Yes

 $\frac{15}{6} = 2.5$
 $\frac{20}{8} = 2.5$
 $\frac{22.5}{9} = 2.5$

8. $RE = 6, ED = 7, RD = 8, SU = 24, UN = 21, SN = 18$

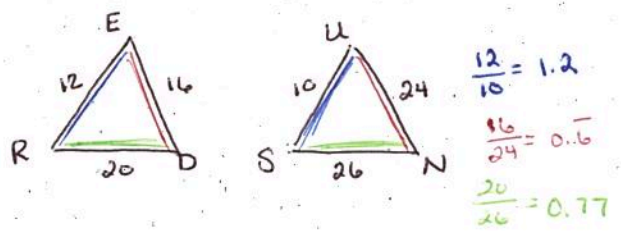
a. Complete: $\triangle RED \sim \triangle$ SNU

b. What is the scale factor? 1:3

 $\frac{6}{24} = \frac{1}{4}$
 $\frac{7}{21} = \frac{1}{3}$
 $\frac{8}{18} = \frac{4}{9}$

9. $RE = 12, ED = 16, RD = 20, SU = 10, UN = 24, SN = 26$

Are the triangles similar? No

 $\frac{12}{10} = 1.2$
 $\frac{16}{24} = 0.6$
 $\frac{20}{26} = 0.77$