Geometry 7.5

Recognize and use proportional relationships of corresponding angle bisectors, altitudes, and medians of similar triangles

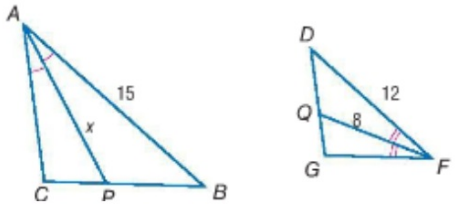
Use the triangle bisector theorem
angle bisector
altitude
median
construction

WB 7.5
prac. 1-7

Quiz 7.3-7.4 Tues.

Example 1 Use Special Segments in Similar Triangles

In the figure, $\triangle ABC \sim \triangle FDG$. Find the value of x.

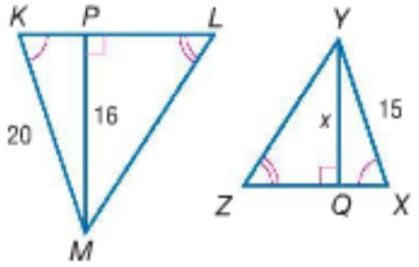


All parts are similar:
medians
angle bisectors
altitudes

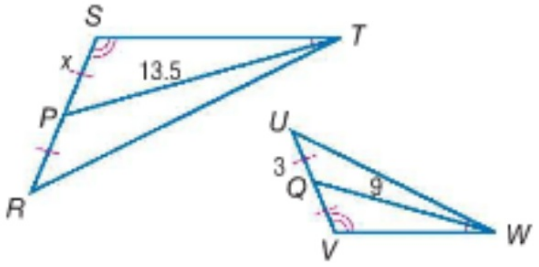
Match up corresponding parts:
will be in proportion

Find the value of x.

1A.



1B.



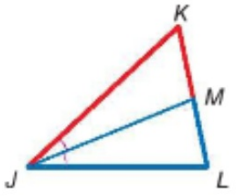
segments prop to sides

Theorem 7.11 Triangle Angle Bisector

An angle bisector in a triangle separates the opposite side into two segments that are proportional to the lengths of the other two sides.

Example If $\overline{JM}$ is an angle bisector of $\triangle JKL$,

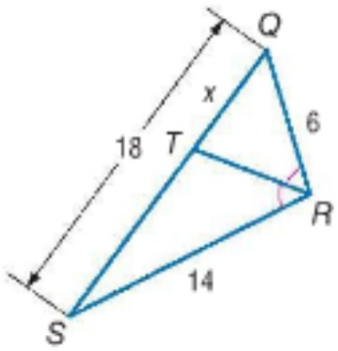
then $\frac{KM}{LM} = \frac{KJ}{LJ}$. ← segments with vertex K ← segments with vertex L



You will prove Theorem 7.11 in Exercise 25.

Example 3 Use the Triangle Angle Bisector Theorem

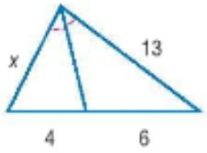
Find x.



GuidedPractice

Find the value of x.

3A.



3B.