Theorems

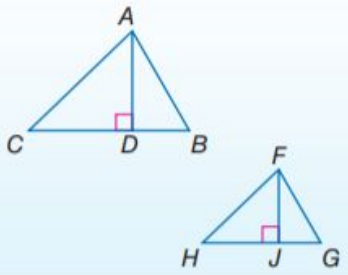
For Your FOLDABLE

Special Segments of Similar Triangles

7.8 If two triangles are similar, the lengths of corresponding altitudes are proportional to the lengths of corresponding sides.

Abbreviation ~△s *have corr. altitudes proportional to corr. sides.*

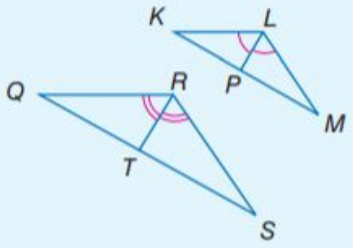
Example If $\triangle ABC \sim \triangle FGH$, then $\frac{AD}{FJ} = \frac{AB}{FG}$.



7.9 If two triangles are similar, the lengths of corresponding angle bisectors are proportional to the lengths of corresponding sides.

Abbreviation ~△s *have corr. ∠ bisectors proportional to corr. sides.*

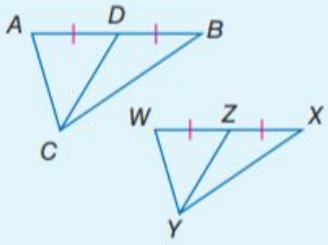
Example If $\triangle KLM \sim \triangle QRS$, then $\frac{LP}{RT} = \frac{LM}{RS}$.



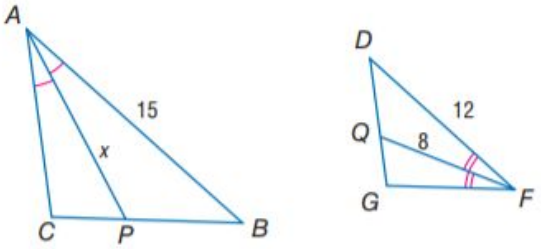
7.10 If two triangles are similar, the lengths of corresponding medians are proportional to the lengths of corresponding sides.

Abbreviation ~△s *have corr. medians proportional to corr. sides.*

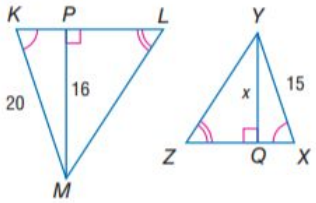
Example If $\triangle ABC \sim \triangle WXY$, then $\frac{CD}{YZ} = \frac{AB}{WX}$.



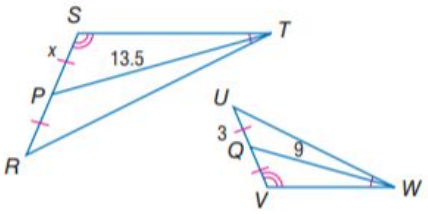
1. In the figure $\triangle ABC \sim \triangle FDG$. Find the value of x.



2. The triangles below are similar. Find the value of x.



3. The triangles below are similar. Find the value of x.

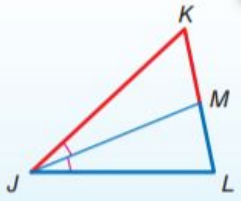


Theorem 7.11 **Triangle Angle Bisector** For Your FOLDABLE

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

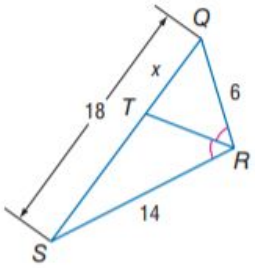
Example If $\overline{JM}$ is an angle bisector of $\triangle JKL$,

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

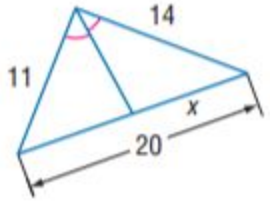


4. Find x in the following diagrams:

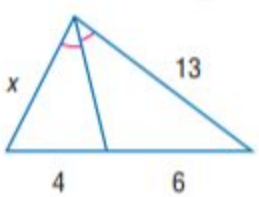
a.



c.



b.



d.