Chapter 6 § 5

Parts of Similar Triangles

Theorems :

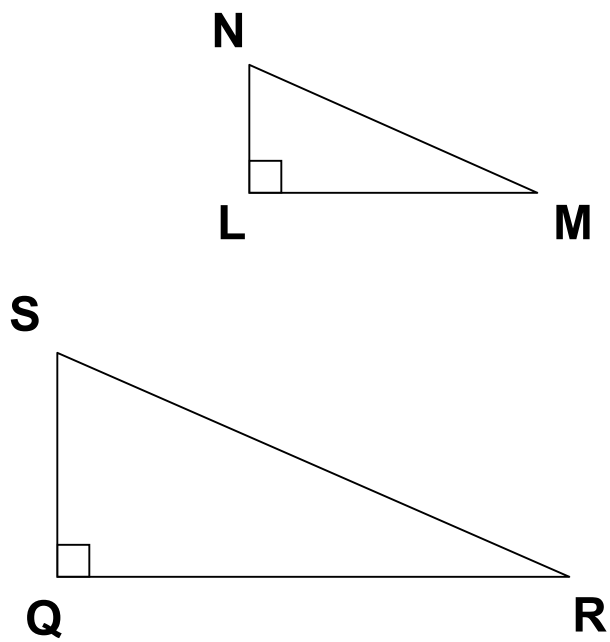
Proportional Perimeters (7-7) – If two triangles are similar, then the perimeters are proportional to the measures of corresponding sides.

(7-8) – If two triangles are similar, then the measures of the corresponding altitudes are proportional to the measures of the corresponding sides.

(7-9) – If two triangles are similar, then the measures of the corresponding angle bisectors of the triangles are proportional to the measures of the corresponding sides.

(7-10) – If two triangles are similar, then the measures of the corresponding medians are proportional to the measures of the corresponding sides,

Angle Bisector (7-11) – An angle bisector in a triangle separates the opposite side into segments that have the same ratio as the other two sides.



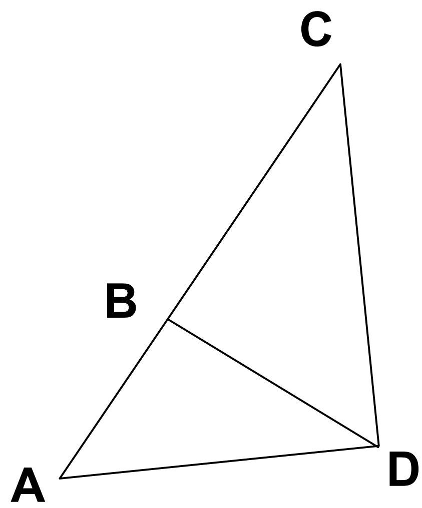
$\Delta LMN \sim \Delta QRS$, QR = 40, RS = 41, SQ = 9, and LM = 9, find the perimeter of ΔLMN.

$$\frac{LM}{QR} = \frac{X}{\text{perimeter of } \Delta QRS}$$

$$\frac{9}{40} = \frac{x}{90}$$

$$40x = 810$$

$$x = 20.25$$



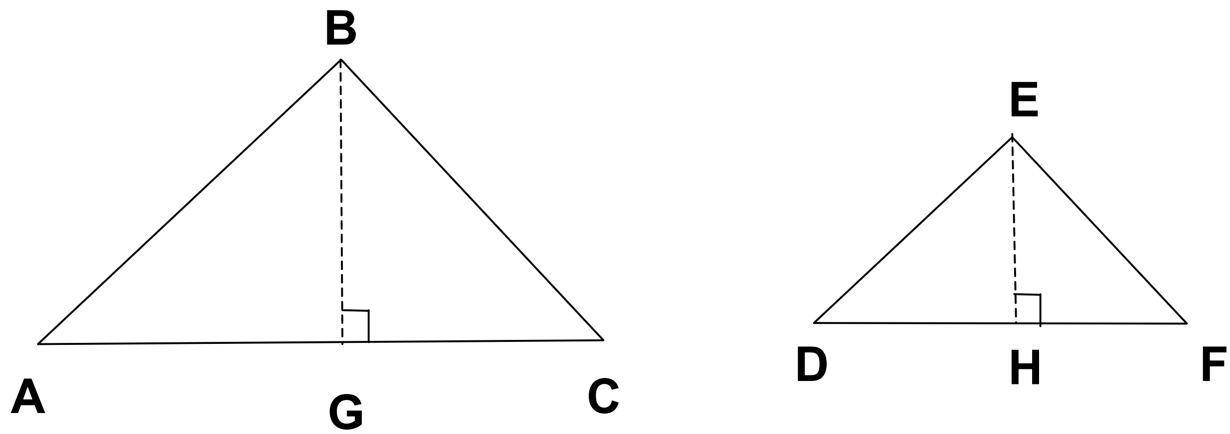
$\Delta ABD \sim \Delta ADC$. If AD = 16, AC = 31, and DC = 23 find the perimeter of ΔABD.

$$\frac{AD}{AC} = \frac{X}{\text{perimeter of } \Delta ADC}$$

$$\frac{16}{31} = \frac{x}{70}$$

$$31x = 1120$$

$$x = 36.1$$



In the figure at the right, $\Delta ABC \sim \Delta DEF$. If BG is an altitude of ΔABC, and EH is an altitude of ΔDEF, then complete the following:

$$\frac{BG}{EH} = \frac{?}{DE}$$

The corresponding measure is AB

$$\frac{BG}{EH} = \frac{BC}{?}$$

The corresponding measure is EF