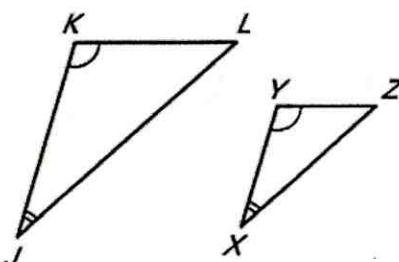
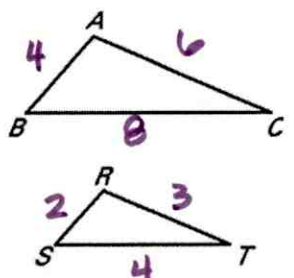
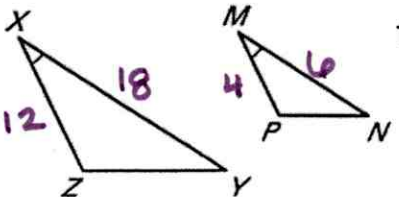


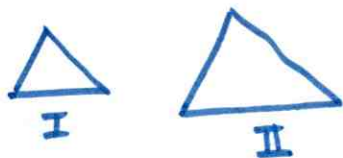
Prove Triangles are Similar by AA, SSS, SAS

6.4

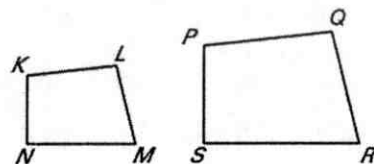
Vocabulary	Definition	Example
<p>POSTULATE 22 ANGLE-ANGLE (AA) SIMILARITY POSTULATE</p> <p>6.4</p>	<p>If two angles of one triangle are congruent to two angles of another triangle, then the two triangles are similar.</p>	 <p>If $\angle K \cong \angle Y$ and $\angle J \cong \angle X$, then $\Delta JKL \sim \Delta XYZ$.</p> <p>Reason: AA</p>
<p>THEOREM 6.2 SIDE-SIDE- SIDE (SSS) SIMILARITY THEOREM</p> <p>6.5</p>	<p>If the corresponding side lengths of the two triangles are <u>proportional</u>, then the triangles are similar.</p>	 <p>If $\frac{AB}{RS} = \frac{AC}{RT} = \frac{BC}{ST}$, $\frac{4}{2} = \frac{6}{3} = \frac{8}{4}$ $= \frac{2}{1}$ then $\Delta ABC \sim \Delta RST$.</p> <p>Reason: SSS</p>
<p>THEOREM 6.3 SIDE-ANGLE- SIDE (SAS) SIMILARITY THEOREM</p>	<p>If an angle of one triangle is congruent to an angle of a second triangle and the lengths of the sides including the angles are <u>proportional</u>, then the triangles are similar.</p>	 <p>If $\angle X \cong \angle M$ and $\frac{XZ}{MP} = \frac{XY}{MN}$, $\frac{12}{4} = \frac{18}{6}$ $= \frac{3}{1}$ then $\Delta XZY \sim \Delta MPN$.</p> <p>Reason: SAS</p>

THEOREM 6.1
PERIMETERS OF
SIMILAR
POLYGONS

If two polygons are similar, then the ratio of their perimeters is equal to the ratio of their corresponding side lengths.



$$\frac{\text{Side I}}{\text{Side II}} = \frac{\text{Perimeter I}}{\text{Perimeter II}}$$



If $KLMN \sim PQRS$, then

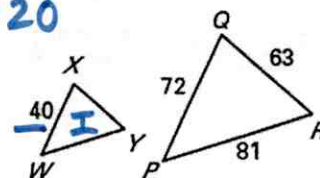
$$\frac{KL + LM + MN + NK}{PQ + QR + RS + SP} = \frac{KL}{PQ} = \frac{LM}{QR} = \frac{MN}{RS} = \frac{NK}{SP}$$

Find the perimeter of $\triangle WXY = 120$

$$\triangle WXY \sim \triangle PQR$$

$$\frac{40}{72} = \frac{5}{9}$$

$$P(\triangle PQR) = 72 + 63 + 81 = 216$$



$$\frac{5}{9} = \frac{P(I)}{216}$$

$$9X = 5(216)$$

$$9X = 1080$$

$$X = 120$$

Two similar rectangles have a scale factor of 4:3. The larger rectangle has a perimeter of 60 inches. Find the perimeter of the smaller rectangle.

$$\frac{4}{3} = \frac{60}{X}$$

$$4X = 180$$

$$X = 45$$

CORRESPONDING
LENGTHS in
SIMILAR
POLYGONS

If two polygons are similar, then the ratio of any two corresponding lengths in the polygons is equal to the scale factor of the similar polygons.

Find the length of median \overline{QS} .

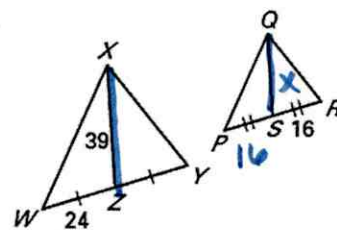
$$\triangle WXY \sim \triangle PQR$$

$$\frac{39}{24} = \frac{X}{16}$$

$$\frac{3}{2} \cdot \frac{24}{16} = \frac{39}{X}$$

$$3X = 2(39)$$

$$3X = 78$$



$$\frac{24}{16} = \frac{3}{2}$$

$$X = 26$$