Lesson 5-6&7

Objective - To find missing sides for similar polygons .

Polygons

# of sides	Name	Drawing
3	Triangle	
4	Quadrilateral	
5	Pentagon	

Similar Figures

Similar - (~) - Same shape.

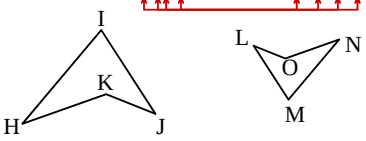
$\triangle ABC \sim \triangle YXZ$

$\triangle BAC \sim \triangle XYZ$

Corresponding Angles	Corresponding Sides
$\angle A \cong \angle Y$	$\overline{AB}, \overline{XY}$
$\angle B \cong \angle X$	$\overline{BC}, \overline{XZ}$
$\angle C \cong \angle Z$	$\overline{AC}, \overline{YZ}$

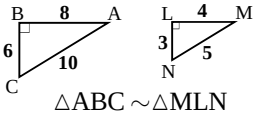
List the corresponding angles and sides if ...

Quad. HIJK ~ Quad. NMLO



Corresponding Angles	Corresponding Sides
$\angle H \cong \angle N$	$\overline{HI}, \overline{MN}$
$\angle I \cong \angle M$	$\overline{IJ}, \overline{LM}$
$\angle J \cong \angle L$	$\overline{JK}, \overline{LO}$
$\angle K \cong \angle O$	$\overline{HK}, \overline{NO}$

Similar Triangles

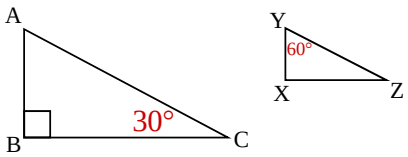


$\triangle ABC \sim \triangle MLN$

≅ Angles	Proportional Sides
$\angle A \cong \angle M$	$\frac{\overline{AB}}{\overline{ML}} = \frac{\overline{BC}}{\overline{LN}} = \frac{\overline{AC}}{\overline{MN}}$
$\angle B \cong \angle L$	$\frac{8}{4} = \frac{6}{3} = \frac{10}{5}$
$\angle C \cong \angle N$	**2:1 ratio**
	Scale factor = 2

Find the missing angles.

1)



$\triangle ABC \sim \triangle YXZ$

$m\angle X = 90°$

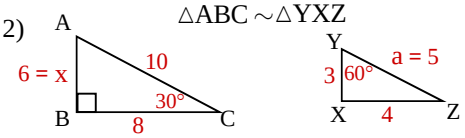
$m\angle A = 60°$

$m\angle Z = 30°$

Find the missing sides.

$\triangle ABC \sim \triangle YXZ$

2)



$AB = 6$ un.

$\frac{x}{3} = \frac{8}{4}$

$4 \bullet x = 3 \bullet 8$

$x = \frac{24}{4} = 6$

$YZ = 5$ un.

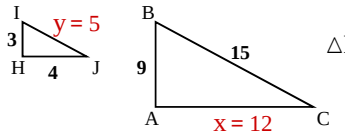
$\frac{a}{10} = \frac{4}{8}$

$8 \bullet a = 4 \bullet 10$

$a = \frac{40}{8} = 5$

Lesson 5-6&7 (cont.)

Find the missing sides.

3) 

△HIJ ∼ △ABC

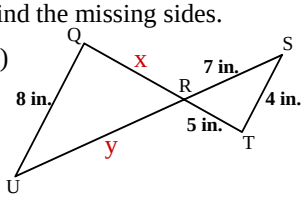
AC = 12 un. IJ = 5 un.

$\frac{x}{4} = \frac{9}{3}$ $\frac{y}{15} = \frac{3}{9}$

$\frac{3x}{3} = \frac{36}{3}$ $\frac{45}{9} = \frac{9y}{9}$

x = 12 **5 = y**

Find the missing sides.

4) 

△QRU ∼ △TRS

QR = 10 in. RU = 14 in.

$\frac{x}{5} = \frac{8}{4}$ $\frac{y}{7} = \frac{8}{4}$

$\frac{4x}{4} = \frac{40}{4}$ $\frac{4y}{4} = \frac{56}{4}$

x = 10 **y = 14**