Key

Main Ideas/ Questions	Notes	7.2

Similar Polygons

- Polygons with the same Shape but different Size.
- Polygons are similar if:
  1) angles are congruent
  2) corresponding sides are proportion
- The ratio of corresponding sides is called the scale factor
- If polygons are similar, then their perimeter are also proportional.

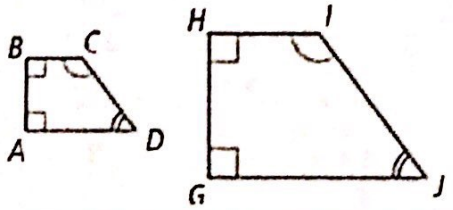
Similarity Statements

Symbol for Similar: ~

A valid similarity statement must match corresponding angles and sides!

Write a similarity statement for the figures below:

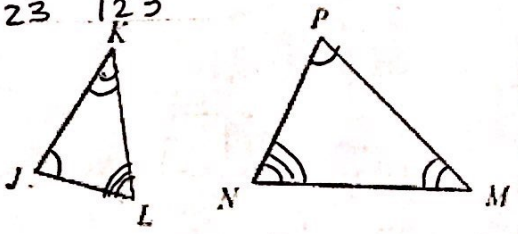
ABCD ~ GHIJ



Directions: List all congruent angles and write a proportion that relates the corresponding sides.

1. $\triangle JKL \sim \triangle PMN$

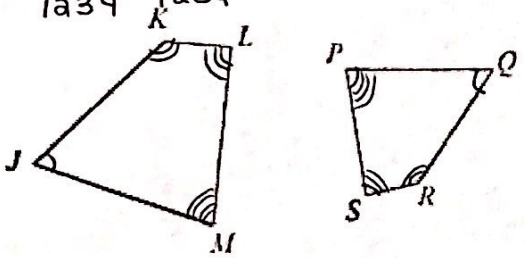
123 123



Angles	Sides
$\angle J \cong \angle P$	$\frac{KJ}{MP} = \frac{LJ}{NP} = \frac{KL}{MN}$
$\angle K \cong \angle M$	
$\angle L \cong \angle N$	

2. $JKLM \sim QRSP$

1234 1234



Angles	Sides
$\angle J \cong \angle Q$	$\frac{JK}{QR} = \frac{KL}{RS} = \frac{LM}{SP} = \frac{JM}{QP}$
$\angle K \cong \angle R$	
$\angle L \cong \angle S$	
$\angle M \cong \angle P$	

3. $JDRT \sim WHYX$

1234 1234

a) $\angle D \cong$ $\angle H$

b) $\frac{RT}{YX} = \frac{DR}{HY}$

c) $\angle Y \cong$ $\angle R$

d) $\angle X \cong$ $\angle T$

e) $\frac{RD}{YH} = \frac{JT}{WX}$

Scanned with CamScanner

Scale Factor
{Order Matters!}

What is the scale factor of $\triangle ABC$ to $\triangle DEF$?

$\frac{8}{12} = \frac{2}{3}$

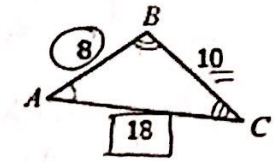
What is the scale factor of $\triangle DEF$ to $\triangle ABC$?

$\frac{15}{10} = \frac{3}{2}$

What is the ratio of the perimeter of $\triangle DEF$ to $\triangle ABC$?

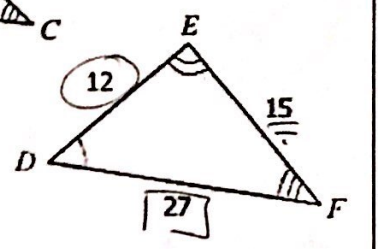
$\frac{54}{36} = \frac{3}{2}$

$\triangle ABC \sim \triangle DEF$
1 2 3 1 2 3



$P = 8+10+18$
36

$\frac{18}{27}$



$P = 12+15+27$
$= 54$

Determining Similarity

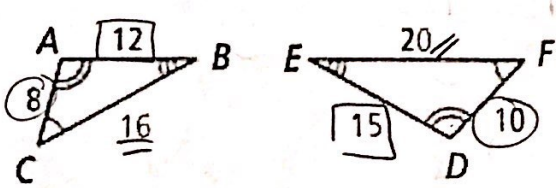
Are the polygons similar? If so, write a similarity statement and give the scale factor.

4.

angles $\cong$ ✓
sides prop. ✓

$\frac{8}{10} = \frac{12}{15} = \frac{16}{20}$

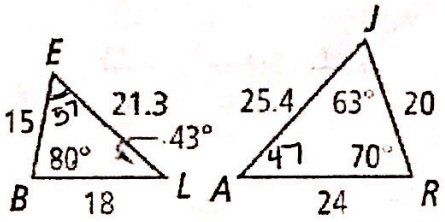
$\frac{4}{5} = \frac{4}{5} = \frac{4}{5}$



$\triangle ABC \sim \triangle DEF$

Scale factor → 4/5

5.



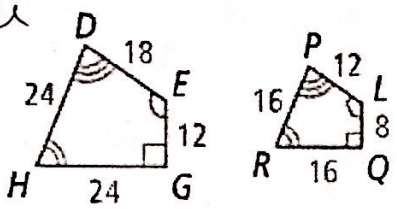
$\triangle$ sum
$80+43 = 123$
$180 - 123 = 57$

$\triangle$ Sum
$63+70 = 133$
$180 - 133 = 47$

not similar
• angles aren't $\cong$

6.

angles are $\cong$ ✓



DEGH ~ PLQR

$\frac{24}{16} = \frac{24}{16} = \frac{12}{8} = \frac{18}{12}$

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

Scale factor is 3/2

Scanned with CamScanner