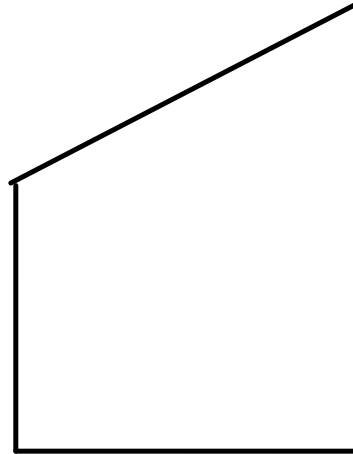
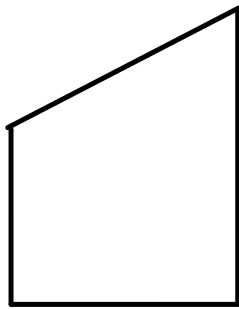


Setion 7.3 Similar Polygons



Polygons are 2-dimensional shapes. They are made of straight lines, and the shape is "closed" (all the lines connect up).



Polygon
(straight sides)

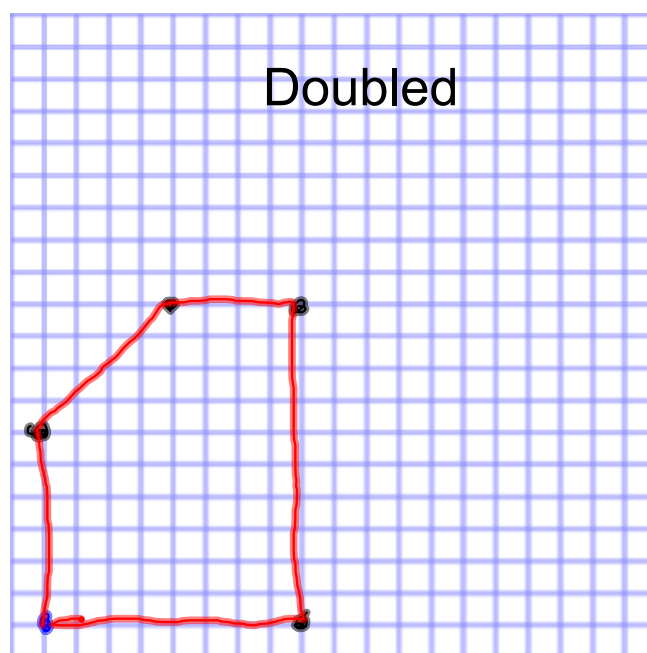
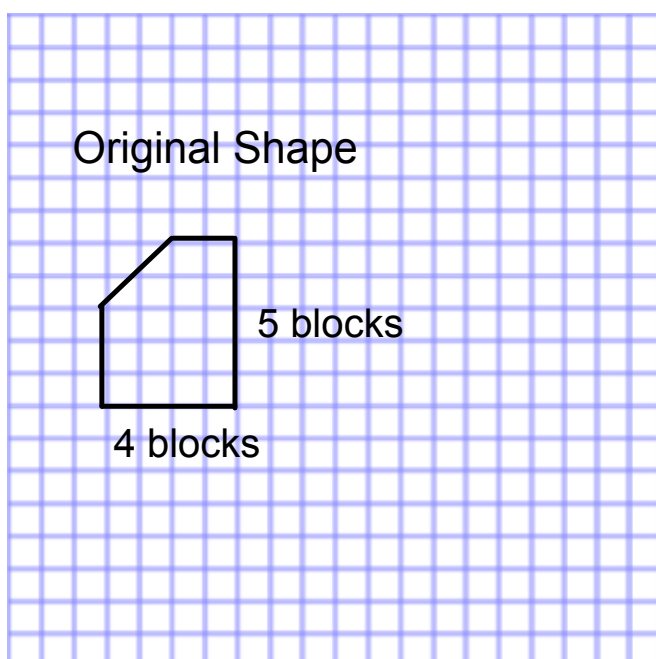


Not a Polygon
(has a curve)



Not a Polygon
(open, not closed)

Activity



Lets double the size of this shape

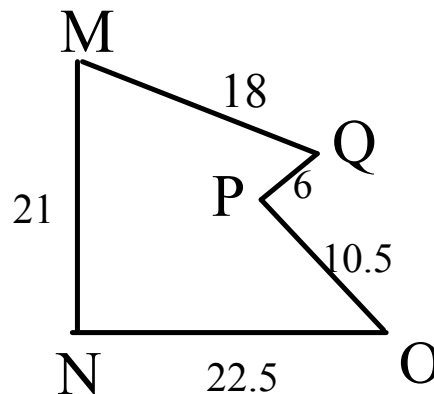
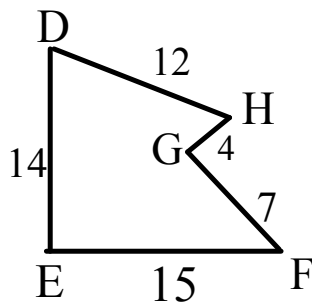
Similar Polygons: are enlargements or reductions of each other: Same shape, but not necessarily the same size.

Corresponding: similar in position or purpose
: the same size; reduced or enlarged

Properties of Similar Polygons
Their corresponding angles are equal
Their corresponding sides are proportional

Symbol for similar is \sim **BOTH
MUST BE
TRUE**

Are the following Similar Polygons?



Step 1) Match up the Angles

Corresponding Sides: DH and MQ
 HG and PQ
 GF and PO
 EF and NO
 ED and NM

Step 2) Match up sides and compare their ratio

$$\frac{MN}{DE} = \frac{NO}{EF} = \frac{OP}{FG} = \frac{PQ}{GH} = \frac{QM}{HD}$$

But doesn't matter
 just ratio must be the
 same in order to be
 similar

Big over Small

Put in the Values

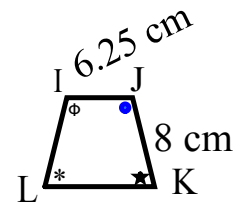
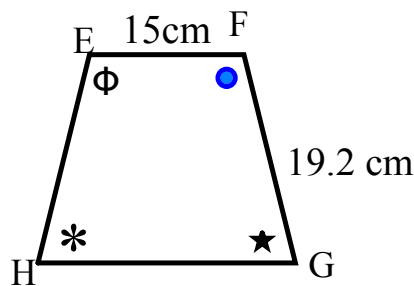
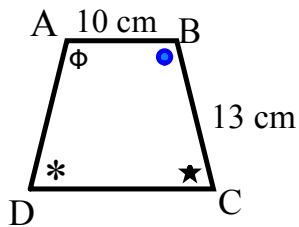
$$\frac{21}{14} = \frac{22.5}{15} = \frac{10}{7} = \frac{6}{4} = \frac{18}{12}$$

$$1.5 = 1.5 = 1.5 = 1.5 = 1.5$$

Bigger polygon is 1.5 times larger

Identifying Similar Polygons

Which two polygons are similar?



Compare Polygon ABCD and EFGH

$$\text{☺} \frac{AB}{EF} = \frac{10}{15}$$

$$= 0.6666$$

$$\text{☺} \frac{BC}{FG} = \frac{13}{19.2}$$

$$= 0.677$$

☹ NOT Similar

Compare Polygon EFGH and IJKL

$$\text{☺} \frac{EF}{IJ} = \frac{15}{6.25}$$

$$\text{☺} \frac{FG}{JK} = \frac{19.2}{8}$$

$$= 2.4$$

☺ Similar

Compare Polygon ABCD and IJKL

$$\text{☺} \frac{AB}{IJ} = \frac{10}{6.25}$$

$$= 1.6$$

$$\text{☺} \frac{BC}{JK} = \frac{13}{8}$$

$$= 1.625$$

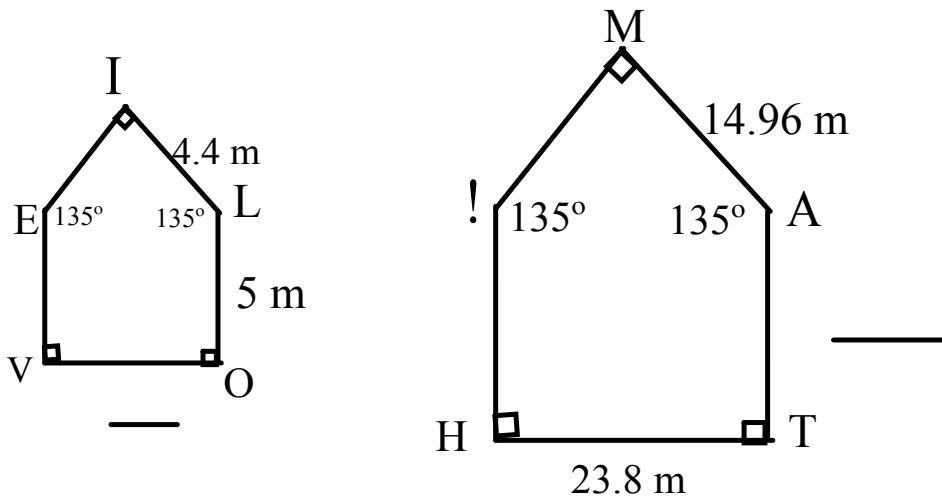
☹ NOT Similar

Solving Problems Using the Properties of Similar Polygons

These two polygons are similar.

a) Calculate the length of VO.

b) Calculate the length of AT



Find AT = ?

$$\frac{MA}{IL} = \frac{AT}{LO}$$

$$\left. \begin{array}{l} \frac{14.96}{4.4} = \frac{AT}{5} \end{array} \right\}$$

$$3.4^{\times 5} = \frac{AT \times 5}{5}$$

$$\boxed{17m = AT}$$

Class/Homework

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#s 4, 5, 6, 9, 11, 13b, 14.

