

Name: \_\_\_\_\_

## Unit 4 – Geometry

### 4.5A – Similar Figures

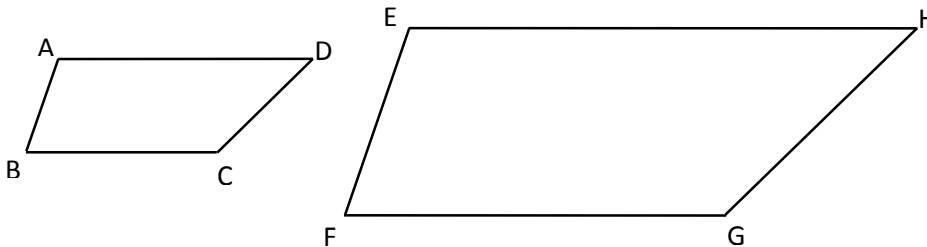


Two shapes are **SIMILAR** if one is the **ENLARGEMENT** or **REDUCTION** of the other.

Two shapes are similar if one is the **SCALE MODEL** of the other.

If two shapes are similar, then the following is true:

ALL the **CORRESPONDING ANGLES** are equal **AND** the **RATIOS** of the **CORRESPONDING SIDES** are equal.



If the shape ABCD is SIMILAR to EFGH (or **ABCD ~ EFGH**) then:

**CORRESPONDING ANGLES** are all equal →

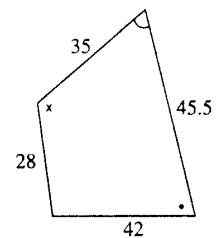
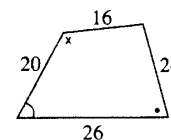
AND **RATIOS** of **CORRESPONDING SIDE LENGTHS** are equal →

- If **JKLM ~ PQRS** then:
  - equal angles are...
  - corresponding sides are...
  - ratios of side lengths equal to each other are...

2. Determine if the following shapes are similar:

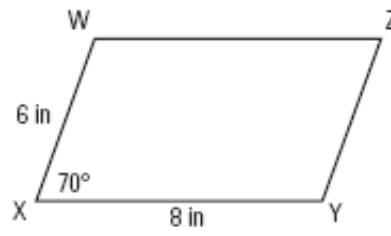
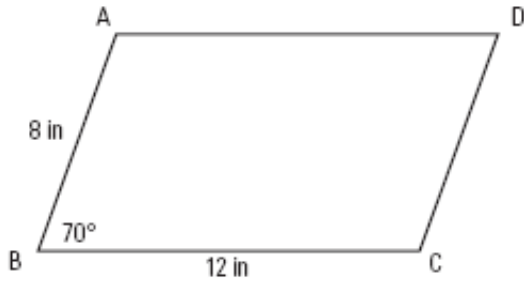
*Step A. Name the shapes.*

*Step B. Check if the corresponding angles are equal.*

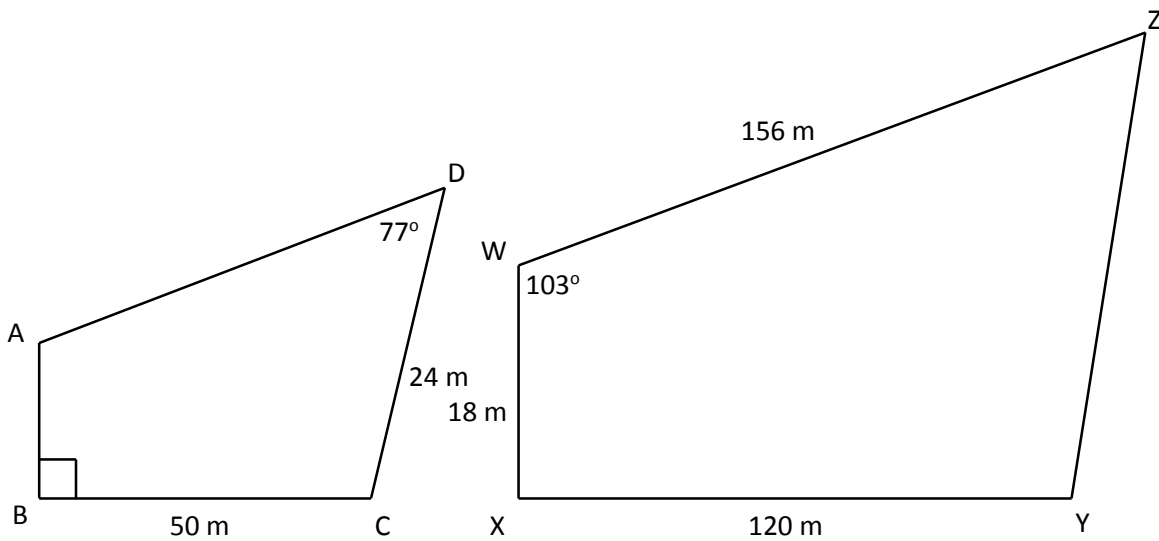


*Step C. Check if the ratios of the corresponding side lengths are equal.*

3. Determine if the two given parallelograms, ABCD and WXYZ, are similar.

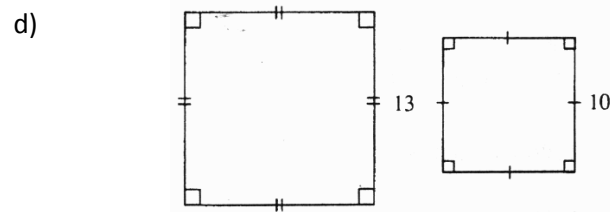
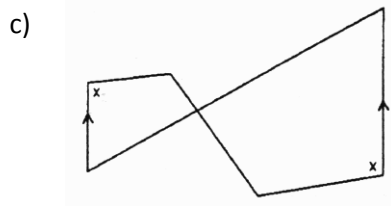
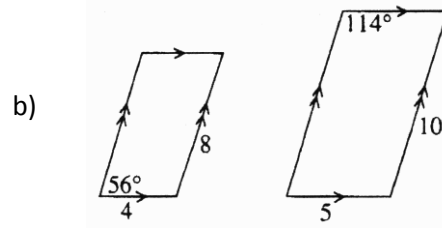
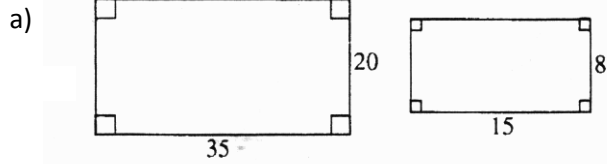


4. Given that  $ABCD \sim WXYZ$ , find the measures of all the angles and all the sides:

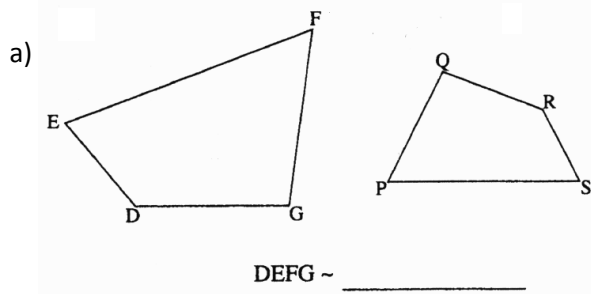


### Assignment

1. Explain why the two polygons are or are not similar.



2. Complete each statement for the following pairs of similar figures.



$$\frac{DE}{PQ} = \frac{FG}{SR}$$

b) If  $ADVRJL \sim ZFTYKN$ , then

$$\frac{DV}{KN} = \frac{VR}{ZF} = \frac{RJ}{ZN}$$

c) If  $ABCDEF \sim GHIJKL$ , state the corresponding angles and their measures.

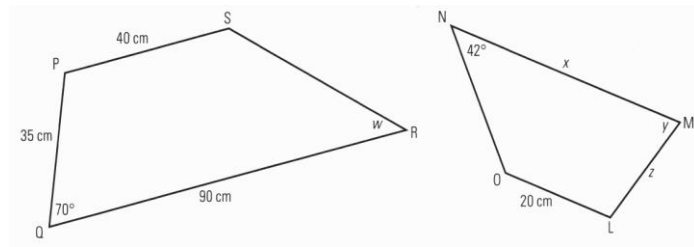
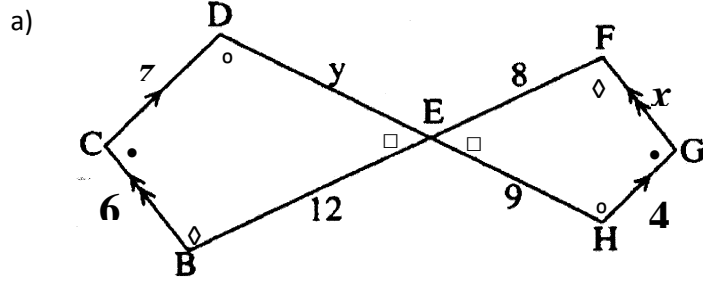
3. Suppose you create a similar polygon using each of the given scale factors below. How will the side lengths and angle measurements compare to those of the original?

a) doubled

b) tripled

c) halved

4. Use the ratios of corresponding sides to calculate the unknown lengths in the following similar figures. (All measurements are in centimetres) **HINT:** Label all the equal angles first and then set up your side length ratios.



5. Talise created a blueprint of her garden with rectangular plots to plant different vegetables. She created three different plots (A, B and C). She then created similar figures of each of the three plots. Identify the three sets of rectangular plots that create similar figures in the blueprint below. Explain your reasoning.

