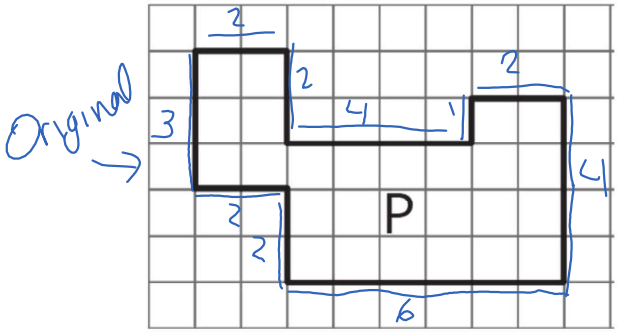
6.3 – Drawing Similar Polygons

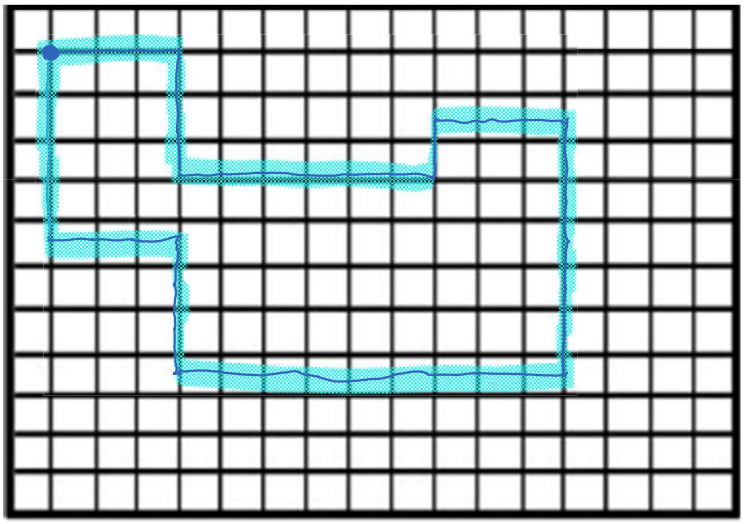
Artists, architects, drafters, and planners use scale diagrams or models in their work. The diagrams or models should be in proportion to the actual objects so that others can visualize what the real objects look like.

You may also want to so this if you are planning the layout of a house or room. This is extremely handy if you are determining how much furniture will fit into a space!

Example 1:
Use graph paper to construct a figure similar to the one given, with sides that are 1 ½ times the length of the original.* Explain how you know that the corresponding angles are equal.



original
1 x 1.5 = 1.5
2 x 1.5 = 3
3 x 1.5 = 4.5
4 x 1.5 = 6
6 x 1.5 = 9

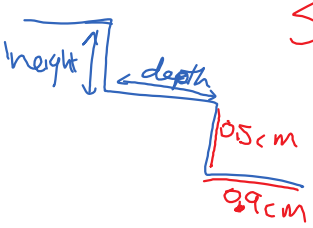


*Corresponding angles will all be 90° since we are using graph paper with perfect squares

***Complete Build Your Skills #1-3 on pages 272-273.*

Example 2:

Xavier is building a staircase using scale drawings. On the drawing, the height of one stair is 0.5 cm and the depth is 0.9 cm. Xavier will use a scale factor of 40 to build the stairs. Calculate the height and depth of the stairs he will build.



Scale factor of 40 = multiplying by 40

0.5cm x 40 = 20cm Height = 20cm

0.9cm x 40 = 36cm Depth = 36cm

*** Build Your Skills #4-6 on page 274.*

***Complete Practise Your New Skills #1-5 on pages 275-276.*

6.4 – Similar Triangles

When working with triangles that are similar there are a few things to consider that do not apply to other similar figures:

1. The sum of all angles of a triangle is always 180°.
    - For similar triangles, this means if two corresponding angles are equal, the third will also be equal.

2. Two triangles are also similar if one pair of corresponding angles is equal **and** the corresponding sides adjacent to the angle are proportional.

3. For two right triangles to be similar, there needs to be only one equivalent pair of corresponding acute angles.
    - This would mean that the right angle and one other are corresponding angle are equal, which would follow rule #1.