

Warm Up

Solve for x :

1.

$$\frac{6x - 12}{3} = 108$$

2.

$$\frac{3}{x} = \frac{9}{21}$$

3.1.2 - Similarity

— Aim: How can I use equivalent ratios to find missing lengths of similar figures? —

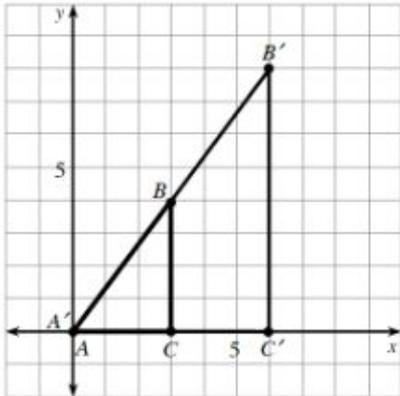
Corresponding Sides

On graph paper, create a coordinate plane and plot the following points:

$$A = (0,0) \quad B = (3,4) \quad C = (3,0)$$

Connect your points to create triangle ABC

Dilate the figure from the origin by a scale factor of 2, forming triangle A'B'C'



Which side of $\Delta A'B'C'$ corresponds to CB ? Which side corresponds to AB ?

What is the relationship of the corresponding sides? How could you get the lengths of $\Delta A'B'C'$ from the lengths of ΔABC ?

Why does $A'B'$ lie directly on AB and $A'C'$ lie directly on AC , but $B'C'$ does not lie directly on BC ?

Could you get the side lengths of $\Delta A'B'C'$ by adding the same amount to each side of ΔABC ? Try this and explain what happened.

If you were to dilate ABC to find $A''B''C''$ and I told you the length of $A''B''$ is 20 units long, how long would $B''C''$ be?

Similar Figures and Scale Factor

Similar figures have the same shape but not necessarily the same size. Similar figures can be created by multiplying each of the side lengths by the **scale factor**.

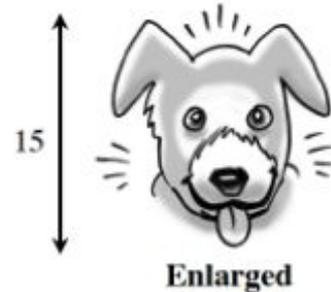
The scale factor will be used to describe the **ratio** of the new figure to the original figure.

Ratio: A comparison of two quantities

$$a:b \text{ or } \frac{a}{b} \text{ or "a to b"}$$

What scale factor was used to enlarge the puppy to the right?

What would happen if we enlarged the puppy by a scale factor of 1?



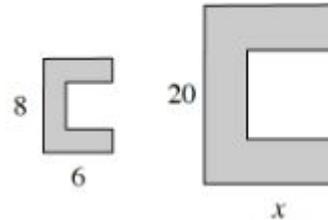
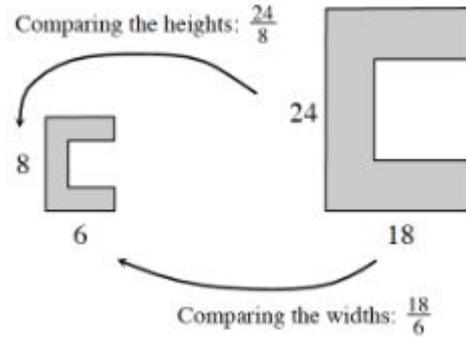
Equal Ratios of Similarity

Verify that the ratio of the heights is equal to the ratio of the widths for the figure to the right.

The sides that we are comparing are the **corresponding sides** of the figure - meaning they are the **sides in the same position for each figure**.

In the figure to the right, solve for x to determine what value is needed for these two figures to be similar.

Ratio of similarity: The ratio between any pair of corresponding sides in similar figures



Classwork, Recap and Homework

Classwork: Purple book pg. 375-376 #1-20

Ratio: $a:b$ or $\frac{a}{b}$ or "a to b"

Corresponding Sides: Sides in the same position on similar figures

Ratio of Similarity: The ratio between any pair of corresponding sides in similar figures

Homework: On PupilPath and lightningmark.com