**Math 9 Lesson 1-4 Enlargements and Reductions**

Scale Diagrams

A diagram that is an enlargement or a reduction of another diagram is called a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**. Can you think of anywhere in real life where we would enlarge an object? Reduce an image?

On a scale diagram, we look at sides that match (ie the same side of the diagram in the original and the scale diagram). These are called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

The measure of how much bigger or smaller the scale diagram is compared to the original is called the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.** Scale factor is always calculated the same way, but can be represented in several different ways on a diagram. (fraction, decimal, ratio)

To calculate scale factor, we create and simplify the fraction below:

Length of side on **scale diagram**

Length of same side on **original diagram**

This can be written as a reduced fraction, as a decimal, converted to a percent, or written as a ratio.



\*\*Be sure that the units are in the same unit before you perform this calculation

**Solution:**



**Solution:**



**Solution:**

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**Big Ideas**

1. **To calculate scale factor, we find the fraction**

$$\frac{length of side on scale diagram}{length of side on original diagram}$$

1. **If the scale factor is larger than 1 :**
2. **If the scale factor is less than 1 :**
3. In order for a diagram to be a **scale diagram**, all corresponding lengths between the original diagram and the new diagram must have the same **scale factor fraction.** If the scale diagram is larger than the original diagram it is called an **enlargement.** If the scale diagram is smaller than the original diagram it is called a **reduction.**

Homework Pg 323 #4,5,7,8,11,12

 Pg 329 #5-8, 10, 12,13, 15, 20