MFM2PI – *Unit 8: Geometry – Lesson 1*  Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Metric & Imperial Conversions: Linear and Mass**

1. **What is the Metric System? What is the Imperial System?**

The ***metric system*** is an international decimalized system of measurement. The metric system has been adopted by most nations around the world, with the exception of the United States, which uses the imperial system.

A key feature of the metric system is that it is built around ***base units***, which are then modified through prefixes in powers of ten. In fact, “deci-”, from the word “decimal”, means “tenth.”

The ***imperial system*** was the official system of measurement of the British Empire. Though it had widespread usage, the imperial system was replaced by the metric system in most industrial nations, with the exception of the United States. It does not include base units for each gradation of measurement, but new units all together.

1. **How to Make Conversions Between Systems of Measurement**

A ***conversion*** means changing something into a different form, expressing it in a new way. When we are asked to convert from one system of measurement to another, or even within the same system of measurement, we will always set it up the same way: as ***two sets of ratios expressed as fractions***!

What you will need are “conversion tables” which will guide you in finding the equivalent measurements. Some common conversions have been provided for you, and these are super important! Always make sure you have your conversion tables on hand for this unit!

How to Make a Conversion: *Example:*

1) **Identify** the two different units that are provided for the question *Convert 65 inches to feet.*  
2) **Find** and **copy** the conversion between these two units of measure  
 *as a fraction*  
3) **Write** an “equal” sign  
4) **Create** your own fraction, using the numbers from the question  
 and putting in a variable for the unknown value  
 *Note: you must put the same unit in the numerator  
 for both fractions!*  
5) **Cross multiply** and solve for the variable

1. **Additional Examples**

a) Convert 190 mm to cm. b) Convert 350 g to kg. c) Convert 25 lbs to kg.

d) Convert 565 yd to m. e) Convert 2 mi to ft. f) Convert 75 cm to in.

**HW: *No Homework Tonight!***