

MAT 106 Measurement Reference Sheet

English System of Measurement

Units of Length in the English System:

$$12 \text{ inches (in.)} = 1 \text{ foot (ft)}$$

$$3 \text{ ft} = 1 \text{ yard (yd)}$$

$$5,280 \text{ ft} = 1 \text{ mile (mi)}$$

English and Metric Equivalents for Length

Because most of the world uses the metric system while the United States uses the English system, it is often necessary to convert between the two systems.

$$1 \text{ in.} = 2.54 \text{ cm}$$

$$1 \text{ ft} = 30.48 \text{ cm} = 0.3048 \text{ m}$$

$$1 \text{ yd} = 91.44 \text{ cm} = 0.9144 \text{ m}$$

$$1 \text{ mi} \approx 1.61 \text{ km}$$

$$1 \text{ mm} \approx 0.03937 \text{ in.}$$

$$1 \text{ cm} \approx 0.3937 \text{ in.}$$

$$1 \text{ m} \approx 1.0936 \text{ yd} = 3.2808 \text{ ft}$$

$$1 \text{ km} \approx 0.6214 \text{ mi}$$

Metric Prefixes

All units other than the three basic units are based on multiples of the basic units, with those multiples all being powers of 10.

Prefix	Symbol	Meaning	
kilo	k	1,000 units	<i>bigger than basic unit</i>
hecto	h	100 units	<i>bigger than basic unit</i>
deka	da	10 units	<i>bigger than basic unit</i>
	m, L, g	1 unit	
deci	d	1/10 of a unit	<i>smaller than basic unit</i>
centi	c	1/100 of a unit	<i>smaller than basic unit</i>
milli	m	1/1000 of a unit	<i>smaller than basic unit</i>

English Conversions for Area

$$1 \text{ ft}^2 = 144 \text{ in}^2$$

$$1 \text{ yd}^2 = 9 \text{ ft}^2 = 1,296 \text{ in}^2$$

$$1 \text{ mi}^2 = 27,878,400 \text{ ft}^2 = 3,097,600 \text{ yd}^2$$

$$1 \text{ acre} = 43,560 \text{ ft}^2$$

$$1 \text{ mi}^2 = 640 \text{ acres}$$

English/Metric Conversions for Area

$$1 \text{ in}^2 \approx 6.45 \text{ cm}^2$$

$$1 \text{ ft}^2 \approx 0.093 \text{ m}^2$$

$$1 \text{ yd}^2 \approx 0.836 \text{ m}^2$$

$$1 \text{ mi}^2 \approx 2.59 \text{ km}^2$$

$$1 \text{ acre} \approx 4,047 \text{ m}^2$$

Units of Capacity in the English System

$$1 \text{ pint (pt)} = 16 \text{ fluid ounces (oz)}$$

$$1 \text{ quart (qt)} = 2 \text{ pints (pt)}$$

$$1 \text{ gallon (gal)} = 4 \text{ quarts (qt)}$$

$$1 \text{ pint (pt)} = 2 \text{ cups (c)}$$

$$1 \text{ cup (c)} = 8 \text{ fluid ounces (oz)}$$

Unit Equivalences for Capacity in the English System

$$1 \text{ cubic foot} \approx 7.48 \text{ gal}$$

$$1 \text{ cubic yard} \approx 202 \text{ gal}$$

$$1 \text{ gal} \approx 231 \text{ in}^3$$

$$1 \text{ ft}^3 \text{ freshwater} \approx 62.5 \text{ lb}$$

$$1 \text{ ft}^3 \text{ seawater} \approx 64 \text{ lb}$$

Unit Equivalences for Capacity in the Metric System

$$1 \text{ cm}^3 = 1 \text{ mL}$$

$$1 \text{ dm}^3 = 1,000 \text{ cm}^3 = 1 \text{ L}$$

$$1 \text{ m}^3 = 1,000 \text{ dm}^3 = 1 \text{ kL}$$

$$1 \text{ L} \approx 1.06 \text{ quarts}$$