



M10C: Two Systems of Measurement Worksheet

Name: _____

Date: _____

28

List of Common Metric Prefixes:

| | | | | | | | | | | | |
|------------|--|--|--|--|--|--|--|--|--|--|--|
| Prefix | | | | | | | | | | | |
| Symbol | | | | | | | | | | | |
| Conversion | | | | | | | | | | | |

Practice Problems:

1. Complete the following metric unit conversions. Use the unit analysis method and show all your work (i.e. the canceling of units).

a) 38 cm = 0.38 m

$$\frac{38 \text{ cm}}{1} \times \frac{10^{-2} \text{ m}}{1 \text{ cm}}$$

b) 93 m = 9.3 dam

$$\frac{93 \text{ m}}{1} \times \frac{1 \text{ dam}}{10^1 \text{ m}}$$

c) 17.32 mm = 1.732 x 10⁻⁵ km or 0.00001732

$$\frac{17.32 \text{ mm}}{1} \times \frac{10^{-3} \text{ m}}{1 \text{ mm}} \times \frac{1 \text{ km}}{10^3 \text{ m}}$$

d) 0.000897 Mg = 8.97 x 10⁵ mg

$$\frac{0.000897 \text{ Mg}}{1} \times \frac{10^6 \text{ g}}{1 \text{ Mg}} \times \frac{1 \text{ mg}}{10^{-3} \text{ g}}$$

e) 190.01 μL = 190010 nL

f) 919 mg = 91.9 cg

List of Common Imperial Prefixes:

| <u>Length</u> | <u>Volume</u> | <u>Mass</u> |
|---------------|---------------|---------------|
| _____ = _____ | _____ = _____ | _____ = _____ |
| _____ = _____ | _____ = _____ | _____ = _____ |
| _____ = _____ | _____ = _____ | _____ = _____ |

2. Complete the following imperial unit conversions. Use the unit analysis method and show all your work (i.e. the canceling of units). Round to the nearest tenth.

a) 21.5" = 1.8 ' ,

d) 10000 inches = 0.1578 miles → 0.2

b) 50 yards = 150 ft

e) 50 gallons = 6400 oz.

c) 642 oz. = 40.1 lbs

f) 10 mi. = 52800 ft

9/15/2010

List of Common Metric/Imperial Conversions

| Length | Volume | Mass |
|---------------|---------------|---------------|
| _____ = _____ | _____ = _____ | _____ = _____ |
| _____ = _____ | | |
| _____ = _____ | | |

3. Complete the following imperial/metric unit conversions. Use the unit analysis method and show all your work (i.e. the canceling of units).

a) 50 m = 164.04 ft.

d) 1 barrel = 119.0 L

b) 25 cm = 9.8 inches

e) 8 L = 270.9 ounces

c) 2.5×10^6 cm = 15.5 miles

f) 16 tonnes = 14545.5 kg ^{imperial} or 16000 kg (metric)
_{2000kg}

4. Provide an example of a good referent for each measurement unit:

a) foot

foot

b) metre

step.

c) mile

distance
61 E+W
roads

d) 100 m

Football
field

e) yard

step.

5. Two cars are driven in opposite directions from a Canada/United States border crossing. In one hour, Hannah drove 62 miles south while Ashley drove 98 km north. Which car has driven farther? By how much?

$$\frac{62 \text{ miles} \times 1.6 \text{ km}}{1} = 99.2 \text{ km}$$

$$\frac{98 \text{ km}}{1} = 98 \text{ km}$$

$$99.2 \text{ km} - 98 \text{ km} = 1.2 \text{ km}$$

Hannah by 1.2 km

6. Andy is 6 ft. 3 in. tall. To list his height on his driver's license application, Andy needs to convert his measurement to centimeters. What is Andy's height to the nearest centimeter?

$$6 \text{ ft} \times 12 = 72 \text{ in} + 3 \text{ in} = 75 \text{ in}$$

$$\frac{75 \text{ in}}{1} \times \frac{1 \text{ cm}}{0.3937 \text{ in}} = 190.5 \text{ cm}$$

191 cm

7. An envelope has a height of $3\frac{5}{8}$ in. Convert this to the nearest hundredth of a cm.

$$\frac{3\frac{5}{8} \text{ in}}{1} \times \frac{1 \text{ cm}}{0.3937 \text{ in}} = 9.21 \text{ cm}$$