

## Problem set - Metric measurements

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Use dimensional analysis to answer questions 1 through 11. Show all of your work. You may use a calculator and notes.

There are ten millimeters in one centimeter, and one hundred centimeters one meter. One kilometer is one thousand meters.

1. How many centimeters is 155mm?
  
  
  
  
  
  
  
  
  
  
2. How many meters is 1280cm?
  
  
  
  
  
  
  
  
  
  
3. How many centimeters is 1.2m?
  
  
  
  
  
  
  
  
  
  
4. How many meters is 14km?
  
  
  
  
  
  
  
  
  
  
5. How many millimeters is one meter?
  
  
  
  
  
  
  
  
  
  
6. How many centimeters is 3.12km?

One liter is 1000 milliliters. Sixty seconds is one minute. Sixty minutes is one hour.

7. How many milliliters is a quarter liter?
8. How many seconds is 75 minutes?
9. How long does it take a pump with a rated capacity of 0.4 liters per minute to empty a 500l tank?
10. How many kilometers per hour is three meters per second?
11. How many meters per second is twenty-five kilometers per hour?

Temperatures in Celsius and Fahrenheit are related by the formulas

$$C = \frac{5}{9}(F - 32) \qquad \text{and} \qquad F = \frac{9}{5}C + 32$$

12. If the temperature is 48°F, what is the temperature in Celsius?
13. If the temperature is 10°C, what is the temperature in Fahrenheit?