

## Dimensional Analysis Quiz

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

**Question 1**

Convert the value  $80.0 \frac{\text{miles}}{\text{h}}$  to units of  $\text{m/s}$

**Question 2**

Light travels at a speed of  $2.998 \times 10^8 \text{ m/s}$

- How many  $s$  does it take for light to travel from the surface of the earth to the moon and back (478,000 *miles*)?
  
- How far does light travel in one minute?

**Question 3**

A cup of water is about 237 *g*. How much energy is required to bring one cup of water from  $25.0^\circ\text{C}$  to  $100.0^\circ\text{C}$ ?

**Question 4**

An adult male should consume about 2500 *Cal* each day. If 2500 *Cal* are added to 200.0 *lb* of water, how much would the water temperature change?

**Question 5**

Convert the following temperatures from  $K$  to  $^\circ\text{C}$  or from  $^\circ\text{C}$  to  $K$

25.0  $^\circ\text{C}$ 376.5  $K$  $-12.3^\circ\text{C}$ 184.7  $K$

**Problem 6**

Give the answer to the correct number of significant figures

- A person runs 1.00 *miles* in 7.46 minutes. Give her speed in  $\frac{m}{s}$
- A metal sample weighs 2.576 *kg* and has  $V = 0.954\ L$ . Give the density in  $\frac{g}{ml}$

**Problem 7**

Based on Table 1.7 in your textbook, guess which metal is described in the problem above

## *Caged Bird*

By Maya Angelou

A free bird leaps  
on the back of the wind  
and floats downstream  
till the current ends  
and dips his wing  
in the orange sun rays  
and dares to claim the sky.

But a bird that stalks  
down his narrow cage  
can seldom see through  
his bars of rage  
his wings are clipped and  
his feet are tied  
so he opens his throat to sing.

The caged bird sings  
with a fearful trill  
of things unknown  
but longed for still  
and his tune is heard  
on the distant hill  
for the caged bird  
sings of freedom.

The free bird thinks of another breeze  
and the trade winds soft through the sighing trees  
and the fat worms waiting on a dawn bright lawn  
and he names the sky his own

But a caged bird stands on the grave of dreams  
his shadow shouts on a nightmare scream  
his wings are clipped and his feet are tied  
so he opens his throat to sing.  
The caged bird sings  
with a fearful trill  
of things unknown  
but longed for still  
and his tune is heard  
on the distant hill  
for the caged bird  
sings of freedom.