Quiz 1.3 – Heat, Temperature, and Dimensional Analysis

Name: _____

Question 1

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

Question 2

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

- 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 $25.0 \, °C$ to $100.0 \, °C$?

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 $°C$ or from $°C$ to K

$25.0 \, °C$ $\qquad\qquad$ $376.5 \, K$ $\qquad\qquad$ $-12.3 \, °C$ $\qquad\qquad$ $184.7 \, K$

Question 6

Pure gold has a density of $19.3 \, \dfrac{g}{cm^3}$. A small sample of pure gold measures $3.5 \, mm$ by $7.6 \, mm$ by $5.5 \, mm$. How much should you expect this sample to weigh?

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.