

Quiz 10.4 – Unit Cells

Name: _____

Question 1

At room temperature, iron has a body-centered cubic structure. Iron atoms have a radius of 126 pm

- Give the coordination number of the iron atoms
- Find the length of the edge of a unit cell
- Estimate the density of iron metal. (The observed value is $7.87\frac{\text{g}}{\text{cm}^3}$)

Question 2

Lead has a face-centered cubic structure, and a density of $11.34\frac{\text{g}}{\text{cm}^3}$

- Give the coordination number of the lead atoms
- Find the length of the edge of a unit cell
- Estimate lead's atomic radius. (The observed value is 175 pm)

When You See Water

By Alice Walker

When you see water in a stream
you say: oh, this is stream
water;
When you see water in the river
you say: oh, this is water
of the river;
When you see ocean
water
you say: This is the ocean's
water!
But actually water is always
only itself
and does not belong
to any of these containers
though it creates them.
And so it is with you.

Invictus

By William Ernest Henley

Out of the night that covers me,
Black as the pit from pole to pole,
I thank whatever gods may be
For my unconquerable soul.

In the fell clutch of circumstance
I have not winced nor cried aloud.
Under the bludgeonings of chance
My head is bloody, but unbowed.

Beyond this place of wrath and tears
Looms but the Horror of the shade,
And yet the menace of the years
Finds and shall find me unafraid.

It matters not how strait the gate,
How charged with punishments the scroll,
I am the master of my fate,
I am the captain of my soul.