Q. 1:

(a) (1) 143.4°C to Kelvins

$143.4\,°C + 273.15$

$= 416.55\,K$

(2) 2596 K to Celsius

$2596\,K - 273.15$

$= 2322\,°C$

(3) $m = 4.76\,g$ & $V = 0.54\,cm^3$, density = ?

$\rho = \frac{m}{V} = \frac{4.76g}{0.54cm^3}$

$\rho = 8.81\ g/cm^3$

(b) Convert the following:

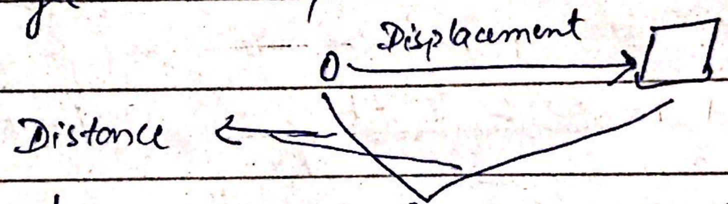
(1) 257,600 meters = 257.6 Km
(2) 58300 milliliters = 58.3 Ltrs
(3) 87421 centimeters = 874.21 meters
(4) 869 Kilograms = 869000 grams
(5) 10^4 milligram = 10 gram

Q.2:-

(a) **Distance**:: Distance is a scalar quantity that travels refer to how much ground an object has covered during its motion.

Displacement:-

Displacement is a vector quantity refers to how far out of place an object is, " it is the object's overall change in position".



Speed::

Speed is how fast something is going in a specific direction and time.

Average Speed:

Average speed is the speed added up and divided by number of speeds.

Positive Acceleration:- When an object is speeding up, the acceleration is in the same direction as the velocity, thus positive acceleration.

Negative Acceleration:

When an object is speeding down, the object is moving in negative direction, thus the accelation is negative.

Question 2:-

(b) Given Data:-

$V_i = 8\ m/sec$

$V_f = 0\ m/sec$

$S = 19\ m$

$a = ?$

Sol:

we know

$2aS = V_f^2 - V_i^2$

$a = \frac{(0)^2 - (8)^2}{2(19)}$

$a = \frac{-64}{38}\ m/sec^2$

$a = -1.684\ m/sec^2$

Q NO3 (a)

Describe in detail & prove methomatically first & second law of motion from daily action of life.

Ans

Newton first law of states that a body stays at rest if it is at rest & move with a constant velocity untill if a net force is applied untill if a net force is applied on it

Newton. Second law states that the net force applied on the body is equal to the rate of change in its momentum

Methamatically

$f = ma$ or

$f = m(v-u)/t$

$ft = mv - mu$

That is when $f = 0$
$v = u$ for whatever time
t is taken. This mean that
object will continoue moving
with uniform velocity u
through out the time t if
u is zero than v will
be also zero i-e object
will remain rest

example

A ~~body~~ book lying
on the table or table

lying in a room. they will not change their position untill an external force acts on it. The other part of the law is if a body is in uniform motion in a straight line it will continue its state untill it is actual upon an external force.

Second law of Motion

The acceleration of an object as produced by a net force is directly proportional to the magnitude of the net force in the same direction as the net force & inversely proportionaly to the mass of the object.

Second Law of Motion formula

let us consider an object of mass (m) moving along a straight line with an initial velocity u let us say after a certain time (t) with a constant accelaration the final velocity become v. Here we say that the initial momentum $(P_1) = (m)(u)$

The final momentum

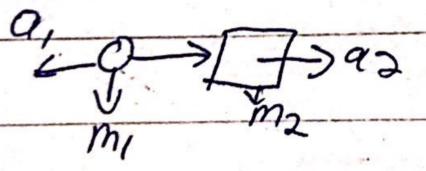
$$P_2 = m(v)$$

Q3 (b)

Ans :- THIRD LAW OF MOTION :-
Action & reaction are same in magnitude but opposite in direction.
The statement means that in every interaction there is a pair of forces acting on the two interacting objects. The size of the first object equals the size of the force on the second object

acceleration : $F_1 = -F_2$

$$m_1 a_1 = -m_2 a_2$$



The change in momentum can be written as:
$p_2 - p_1 = (m \times v) - (m \times u) = m(v-u)$
As we know the rate change of momentum with respect to time is proportional to the applied force. The applied force

$$(f) \propto \frac{(m(v-u))}{t} \quad \text{or} \quad f \propto m(a).$$

P.T.O

as acceleration (a) = rate of change of velocity with respect of time

f = K(m)(a).

example:-

When ridding a bicycle the bicycle acts as mass and our leg mussle pushing on the pedal or the bicycle is the force.