Science 10 Name _____

Physics Introductory Worksheet

Complete all work on a separate piece of paper (make sure to label each problem)

1) Using linear conversions, convert the following. (show all steps and units)

a) 132,000 cm to mi b) 3,100.08 ft to m c) 38.46 g to kg d) 3 days to seconds

Solve for the designated variable (you need to show all steps to get credit)

2) a) $\vec{d} = \vec{v}t$ solve for "t'

b) $\vec{v} = \vec{v}_0 + \vec{a}t$ solve for "v_0"

c) $\vec{v} = \vec{v}_0 + \vec{a}t$ solve for "t"

d) $\vec{d} = d_0 + \vec{v}_0 t + \frac{1}{2}\vec{a}t^2$ solve for "a"

e) $\vec{d} = d_0 + \vec{v}_0 t + \frac{1}{2}\vec{a}t^2$ solve for "v_0"

f) $\vec{v}^2 = \vec{v}_0^2 + 2\vec{a}\vec{d}$ solve for "v_0"

Calculate the following problems. Show all work, units and conversions and remember to apply the significant figures rules used in the Chemistry unit of this course.

3) While John is trvelling along a highway, he notices a 160 km marker as he passes through town. Later John passes another marker, 115 km.

a) What is the distance between town and John's current location?

b) What is John's current position?

4) Light from the sun reaches Earth in 8.3 min. Considering the speed of light is 3.00×10^8 m/s, how far is the earth from the sun?

5) Ann is driving down a street at 55 km/h. Suddenly a child runs into the street. If it takes Ann 0.75 s to react and apply the brakes on her car, how many meters will she have moved before she starts to slow down?

6) An airplane accelerates from a velocity of 21 m/s at a constant rate of 3.0 m/s^2 over a distance of 535 m. What is this plane's final velocity?

7) Determine the displacement of a plane that is uniformly accelerated from 66 m/s to 88 m/s in 12 s.

8) A race car can be slowed with a constant acceleration of -11 m/s^2.

a) If the car is going 55 m/s, how many meters will it take to come to a complete stop?

b) What would this distance be if the race car is going 110.0 m/s?

9) A parachute on a racing car opens and changes the speed of the car from 85.2 m/s to 44.3 m/s in a period of 4.5 seconds. What is the acceleration of the race car?

10) A car travelling at a speed of 30.8 m/s encounters an emergency and comes to a complete stop. How much time will it take for the car to stop if it negatively accelerates -4.0 m/s^2?