

# Physics 112

## Assignment # 1

Due Wednesday, Feb 12<sup>th</sup>, 2020

### Scientific Notation and Converting Units

Write the following in Proper Scientific Notation

1.  $126.44 \times 10^{23}$
2.  $0.000051 \times 10^{-25}$
3.  $77253.466 \times 10^{-18}$
4.  $-0.000544 \times 10^{14}$

### Formula Rearranging/Solving for Unknown Variables (show your work)

- |  |   |
|--|---|
| 1. $E_g = mgh$<br>$E_g = 2800$<br>$m = 20$<br>$g = 9.8$                    | 6. $E_k = \frac{1}{2}mv^2$<br>$E_k = 25000$<br>$v = 50$                                     |
| 2. $Ft = mv_1 - mv_2$<br>$m = 10$<br>$v_1 = 50$<br>$v_2 = 10$<br>$t = 2.0$ | 7. $F = \frac{mv^2}{r}$<br>$m = 500$<br>$v = 20$<br>$F = 10000$                             |
| 3. $W = Fd$<br>$W = 2100$<br>$F = 300$                                     | 8. $Ft = mv_1 - mv_2$<br>$F = 5000$<br>$m = 1000$<br>$t = 5$<br>$v_1 = 15$                  |
| 4. $E_k = \frac{1}{2}mv^2$<br>$E_k = 2400$<br>$m = 100$                    | 9. $x = x_0 + v_0t + \frac{1}{2}at^2$<br>$V_0 = 25$<br>$a = -9.8$<br>$t = 1.6$<br>$x = 400$ |
| 5. $d = \frac{1}{2}(V + V_0)t$<br>$d = 400$<br>$v = 60$<br>$t = 8$         | 10. $ma = F_T - mg$<br>$m = 100$<br>$F_T = 800$<br>$g = 9.8$                                |

Selected Answers : 1.  $h=14.29$  2.  $F=200$  3.  $d=7$  4.  $v = +/- 6.93$  5.  $V_0 = 40$

Convert the following as required: (Show your work in Factor Label Form)

1. 98.14 kg to g ( **$9.814 \times 10^4$ g**)
2.  $1887.43 \times 10^{-10}$  mm to m ( **$1.89 \times 10^{-10}$ m**)
3.  $2488.34 \times 10^9$  Tb to kb ( **$2.49 \times 10^{21}$  kb**)
4. 144 km/h to m/s (**40m/s**)
5. 123.94  $\mu$ s to s
6. 219.3 Mg to mg
7. 108 km/min to cm/s
8. 25m/s to km/h