Engineering Physics I – Fall 2015
Quiz 2 – September 17, 2015
Name: SOLUTIONS

1. Convert an acceleration of 10 m/s^2 into m/min^2 (m is meters, min is minutes). You can approximate 10/6 as 1.6

a) $6x10^3$ m/min^2 **c) $3.6x10^4$ m/min^2**
b) $6x10^4$ m/min^2 d) $1.6x10^{-1}$ cm^2

Recall that you must multiply 10 m/s^2 by 60 s/min TWICE to convert the s^2 to min^2.

$$10\ \frac{m}{s^2}\times\frac{60s}{min}\times\frac{60s}{min}=3.6\times10^4\ \frac{m}{min^2}$$

2. True or False – Acceleration only affects the magnitude (speed) of the velocity

False. Acceleration can affect the magnitude of the velocity, the direction of velocity, or BOTH.

3. Two balls fall from a height h at the same time. Ball 1 has an initial velocity in the horizontal (x) direction of Vo,x, while Ball 2 has no initial x velocity and falls straight down. **Circle the best answer:**

a) Which ball hits the ground first? **Ball 1** **Ball 2** **Both hit at same time**

b) Which ball has a faster *total* speed when it hits the ground? **Ball 1** **Ball 2** **Both have the same speed**

Both balls hit the ground at the same time because their motion in the y direction is identical.
Ball 1 has a faster total speed because it has the same Vy as ball 2 but it also has a component of velocity in the X direction.