**Phys 101 – Sec # 1** **Quiz # 1 (Ch. 2)**

**Name:** Key **ID #**

1- A stone is thrown vertically upward with an initial speed of 15 m/s. What is its speed at a height of 10 m from its release point?

$v_0 = 15 \ m/s$

$\Delta y = 10 - 0 = 10 \ m$

$a = -g$

$v_f^2 - v_0^2 = -2g\Delta y$

$v_f^2 = -2(9.8)(10) + (15)^2$

$\Rightarrow v_f = \sqrt{29}$

$v_f \simeq 5.4 \ m/s$

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2- A particle moving along the x axis has a position given by

x = (24 t - 2 t**3) meters,

Where t is measured in seconds.

How far is the particle from the origin (x=0) when the particle stops momentarily?

stops momentarily $\Rightarrow v = 0$

but $v = \frac{dx}{dt} = 24 - 6t^2 = 0$

$\Rightarrow -6t^2 = -24$

$t^2 = 4$

$t = 2 \ s$

when $t = 2 \ s$, $x = 24(2) - 2(2)^3$

$= 48 - 16 = 32 \ m$