

Re: Please check my calculations

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Source: <http://sci.tech-archive.net/Archive/sci.math/2006-02/msg02034.html>

- *From:* Anon <spamhole@xxxxxxxxxxxxxxxxxxxx>
 - *Date:* Mon, 13 Feb 2006 08:07:51 GMT
-

On 12 Feb 2006 23:18:06 -0800, "Protoman" <Protoman2050@xxxxxxxx>
wrote:

Anon wrote:

On 12 Feb 2006 21:06:03 -0800, "Protoman" <Protoman2050@xxxxxxxx>
wrote:

Anon wrote:

On 12 Feb 2006 20:25:17 -0800,
"Protoman" <Protoman2050@xxxxxxxx>
wrote:

x is time in seconds, $-16x^2$
is the acceleration of
gravity, $256x$ is
the initial velocity, $f(x)$ is
the equation for velocity,
 $F(x)$ is the
equation for displacement,
 $f'(x)$ is the equation for
acceleration ,and
the units are feet and
seconds. Hope this helps!!!

Not likely. Just post the statement of the
problem that you are
trying to solve, OK?

I'm trying to solve this:

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A bullet is launched from ground level at 180 degrees. The bullet has an initial velocity of 256ft./sec. Find the max altitude, the time it takes to get there, and the horizontal displacement at the max altitude.

Sorry I could not see your post, my news server apparently went down for a couple of hours.

About your problem ... "launched from ground level at 180 degrees"? What does that mean? Is that horizontal, or vertical, or something else? Usually, 90 degrees means "straight up".

I meant 90 degrees. Sorry, I sort of think in upside down mirror images, probably 'cause I'm left-handed.

OK, then basically your original results were correct. Taking $g = 32 \text{ ft/sec}^2$ and initial velocity $v_0 = 256 \text{ ft/sec}$,

$$\text{velocity} = v(t) = -gt + v_0$$

At its highest point, the bullet's velocity is zero, which occurs at time

$$32 t = 256$$
$$t = 8 \text{ seconds}$$

$$\text{bullet height} = h(t) = -(1/2) g t^2 + v_0 t$$

Maximum height occurs at $t =$