

6.7) Data Given:

$h(m)$	$t(s)$
100	0
80	2.02
60	2.86
40	3.5
20	4.04
0	4.51

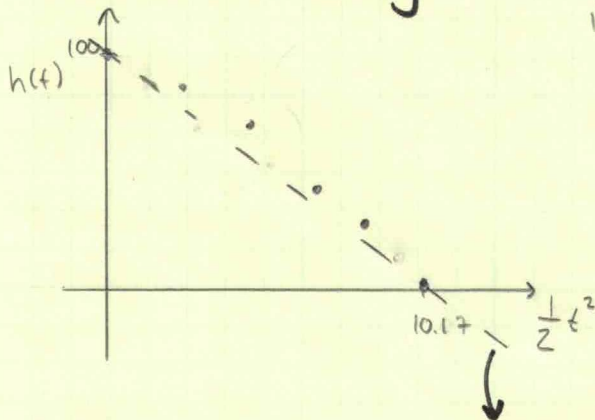
Assuming no drag &
Velocity = 0 @ $t=0$, then
the height model is:

$$h(t) = h_0 - \frac{1}{2}gt^2$$

Find eqn fitting linear eqn to data & the experimental value of "g".

What Are We Doing?

Rewrite eqn to make obvious it is linear in the unknowns.



$$\underbrace{h(t)}_{\text{"y"}} = \underbrace{\left(-\frac{1}{2}t^2\right)}_{\text{"x"}} \cdot \underbrace{g}_{\text{"m"}} + \underbrace{h_0}_{\text{"b"}}$$

Want to find this line, the slope of which is $(-g)$

>> % store h, & t

>> y = h;

>> x = (fill in ...)

>> [a1, a0] = linear-regression(x, y)

>> % interpret the result...

own implementation done in class.

Alternative (more involved): assume h_0 is known & solve only for "g".