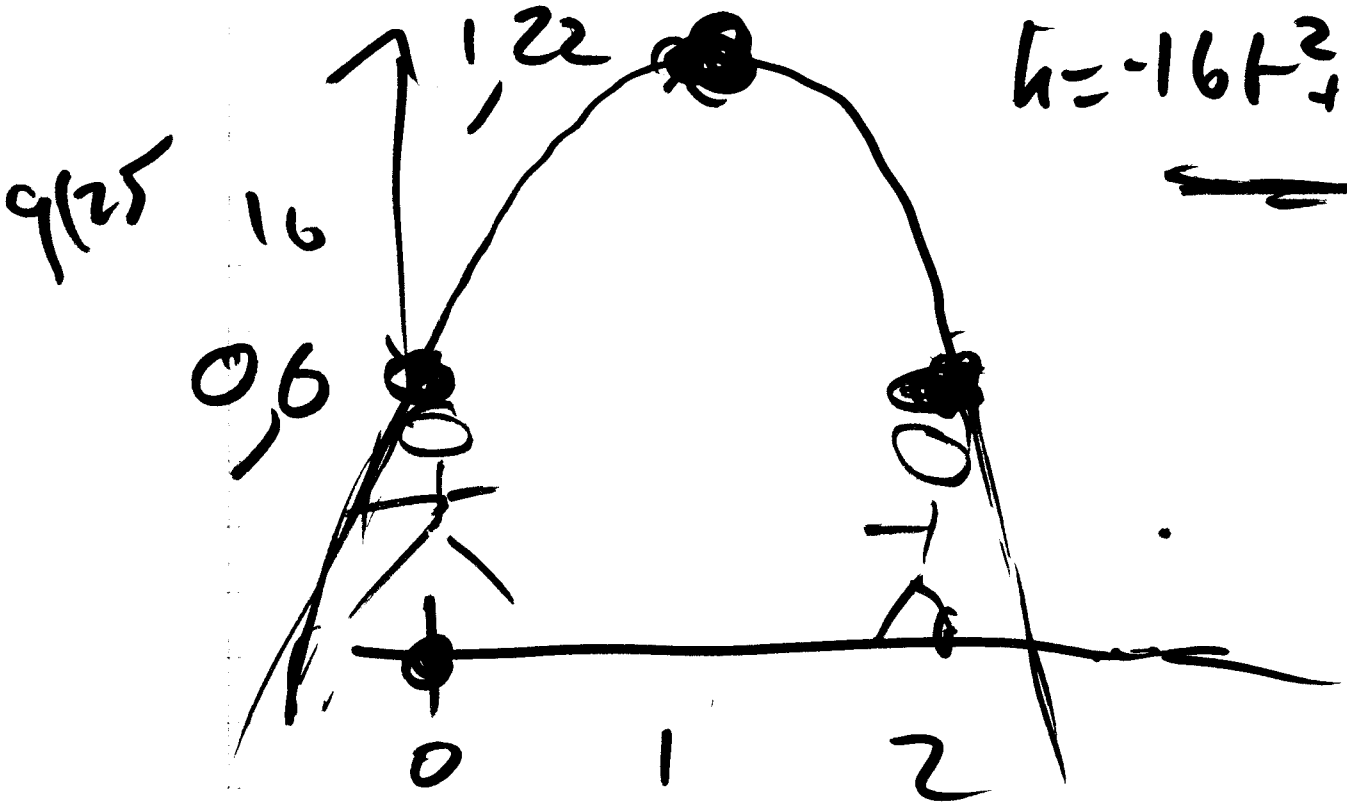


$h = -16t^2 + 32t + 6$

$V(t) = h'(t) = -32t + 32$

$V(0) = 32$

$F = ma = \frac{GMm}{r^2}$

$a(t) = -32$

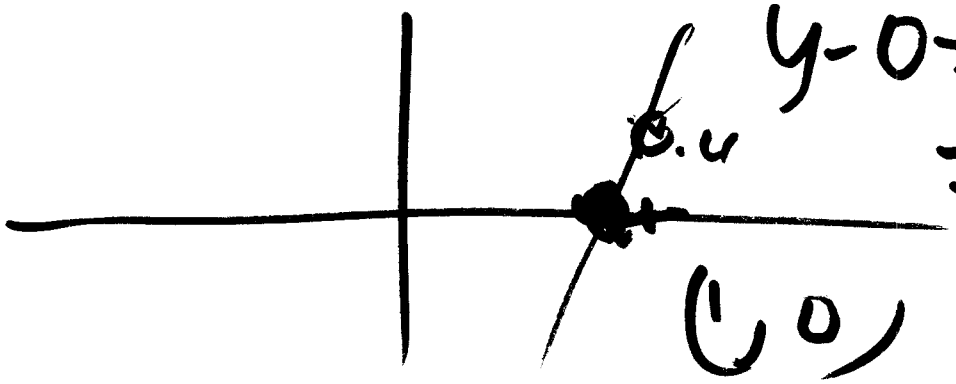
$a = \frac{1}{4}32 = 8\ (\text{ft/sec})/\text{sec}$

100 mi:

If $M_m = M_e$ $a_{moon} = -32.16 - 512\ \text{ft/s}^2$

$$y = \frac{(1.1+1)(1.1^2-1)}{(x+1)(x^2-1)} = 2.1 \cdot .21 \approx .441$$

$x = 1 \quad y = 0$



$y - 0 = 4(x-1)$

$= 4x - 4$

$$y' = 1 \cdot (x^2-1) + (x+1)(2x)$$

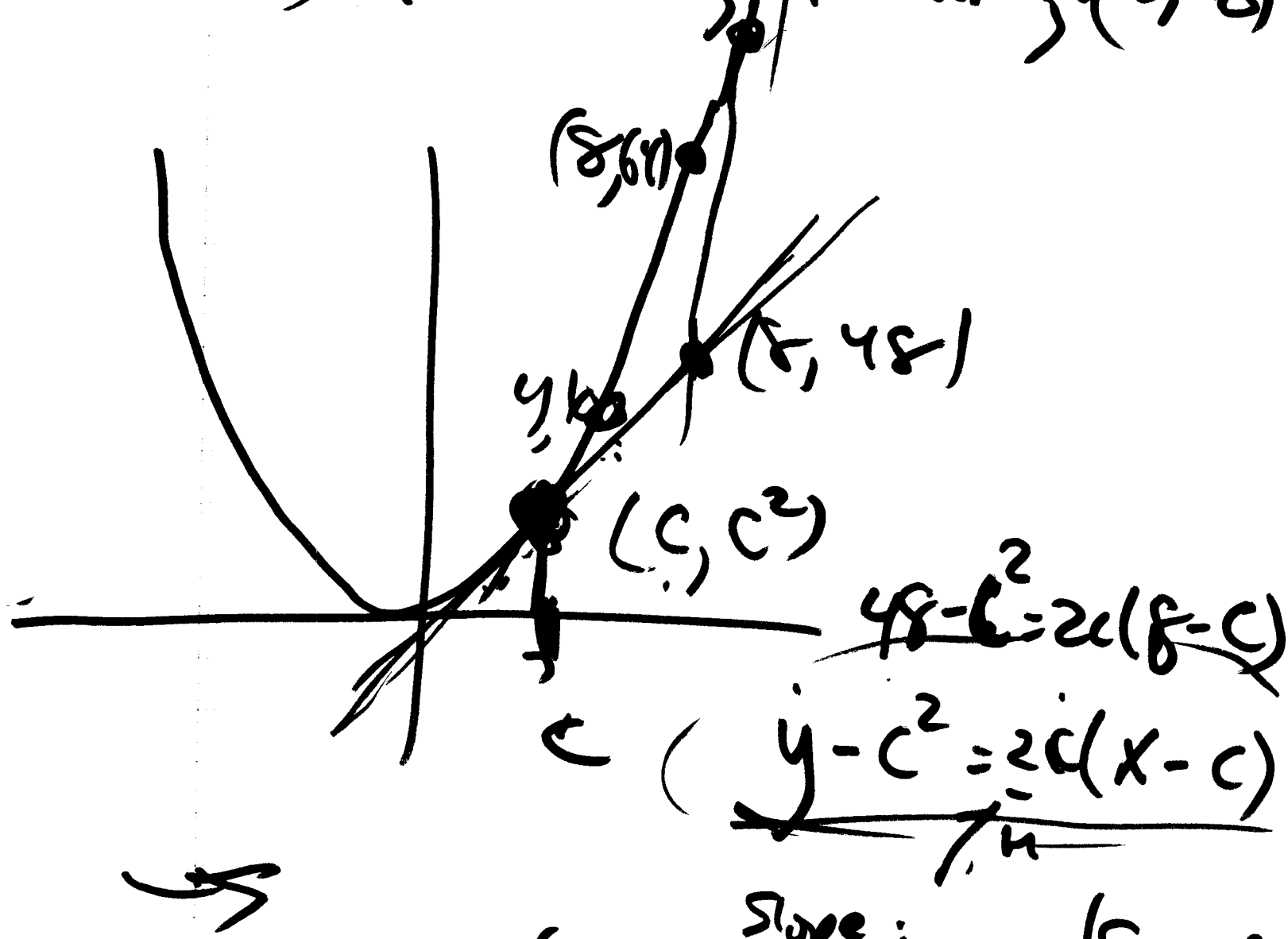
$$y'(1) = 1(1^2-1) + (1+1)(2 \cdot 1) = 4$$

$$y(1.1) \approx 0 + 4(.1)$$

$$y(x) = x^3 + x^2 - x - 1$$

$$y' = 3x^2 + 2x - 1 \qquad y'(1) = 3+2-1$$

$y = x^2$ tangent through $(8, 48)$



$48 - c^2 = 2c(8 - c)$

$y - c^2 = 2c(x - c)$

Slope: $2c$ at (c, c^2)

Tangent line at $x = c$ of $y = f(x)$

$y - f(c) = f'(c)(x - c)$ $\quad (c, f(c))$

$c = 3$ $\quad y - 9 = 6(x - 3)$ $\quad (8, 48)$: $8^2 = 2 \cdot 3$

Is $48 - 9 = 6(8 - 3)$

$39 = 6 \cdot 5$

$$y - c^2 = 2c(x - c)$$

$$48 - c^2 = 2c(8 - c)$$ hits (8, 48)

$$48 - c^2 = 16c - 2c^2$$

$$c^2 - 16c + 48 = 0$$

~~$16 \pm \sqrt{16^2}$~~

$$(c - 4)(c - 12) = 0$$

$c = 4 \quad c = 12$