

# Shy diving

$$\frac{dv}{dt} = -9.8$$

$$t=0, v=0$$

$$v = -9.8t + C \Rightarrow v = -9.8t$$

$$\frac{dh}{dt} = v = -9.8t$$

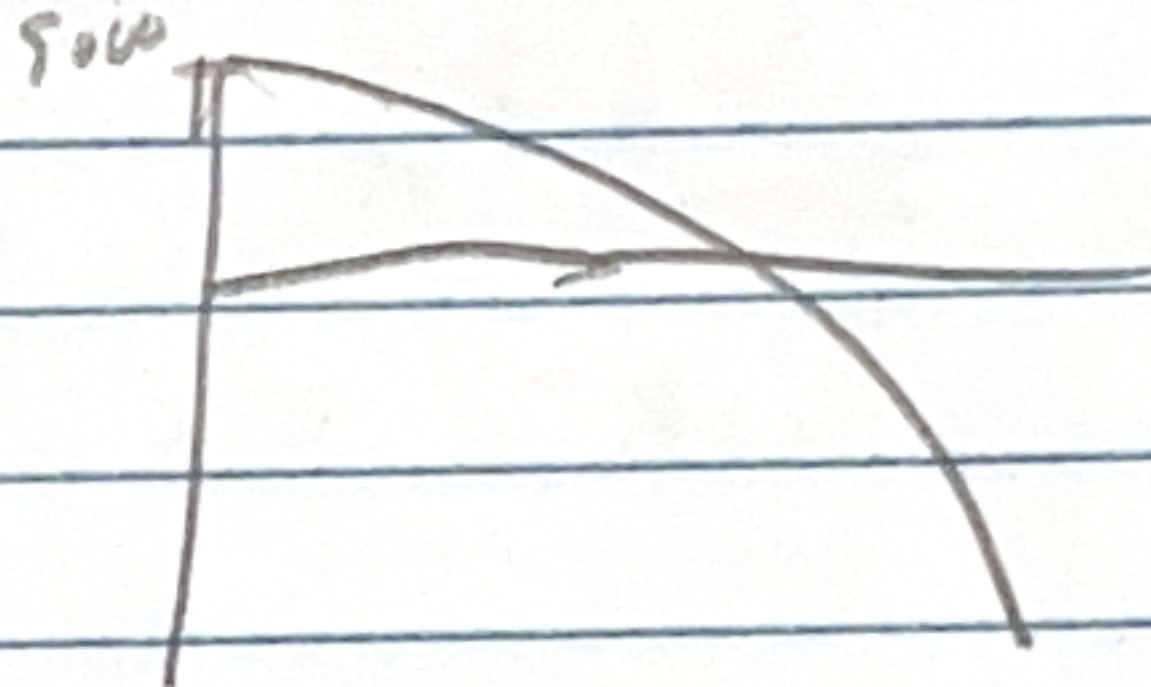
$$h = -4.9t^2 + 5000$$

$$t = 31.9 \text{ sec}, h=0, v = -313 \text{ m/s}$$

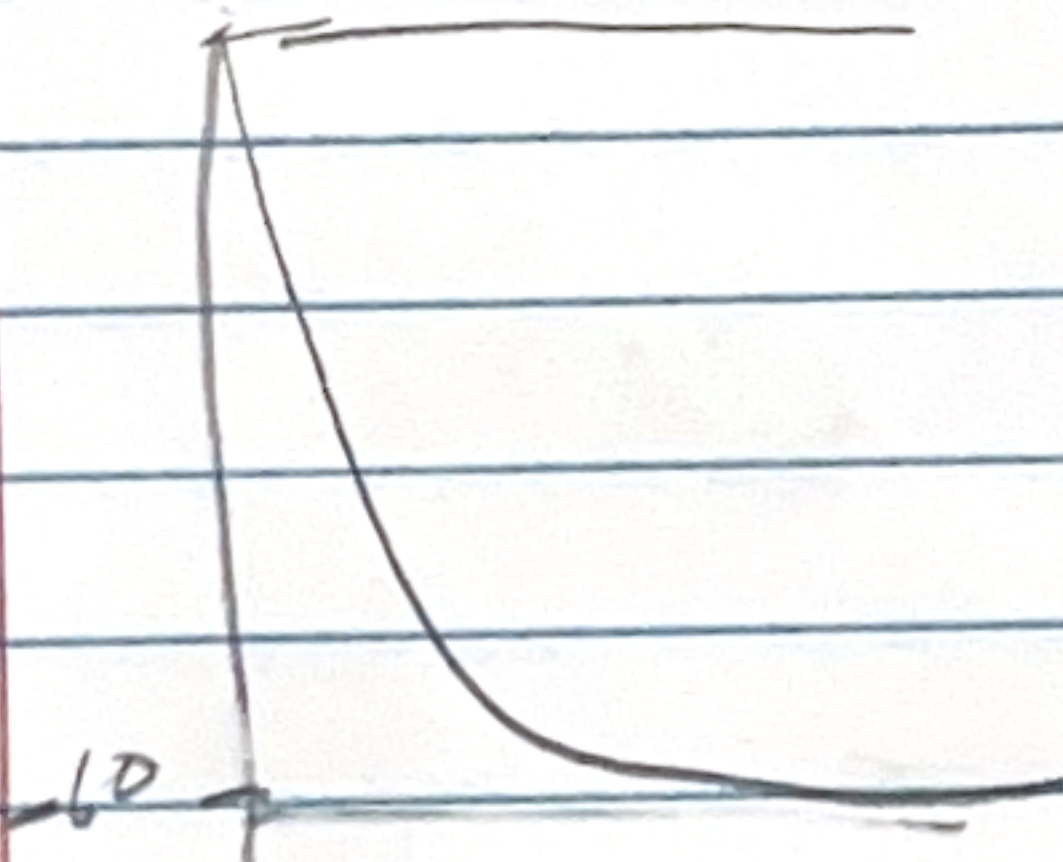
5 Velocity



H



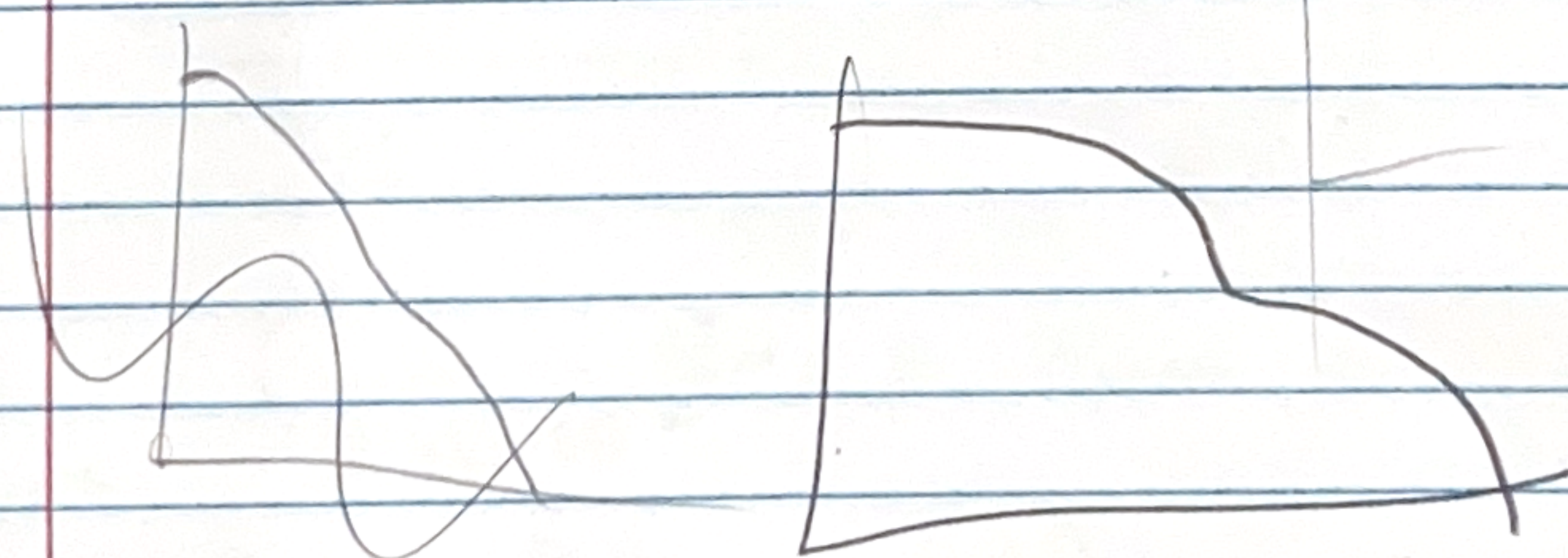
6



$$t = 89 \text{ sec to reach grain}$$

$$v = -57.1 \text{ m/s} = -127.9 \text{ mph}$$

7



8

External Velocity is a lot higher and always changing due to fluctuating K-values  $\Rightarrow$  hard to graph b/c step size issues