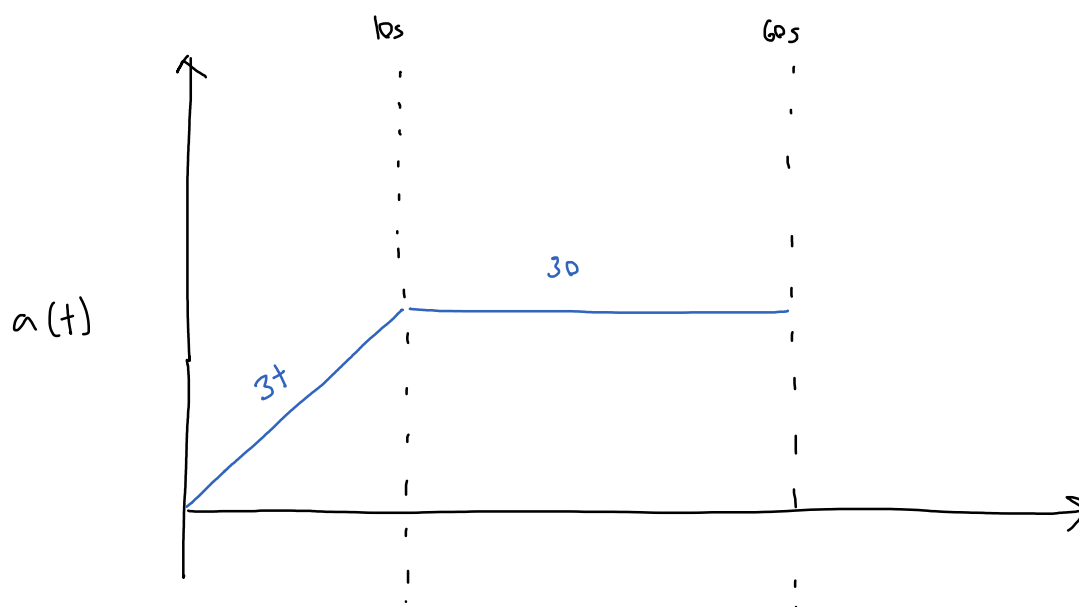
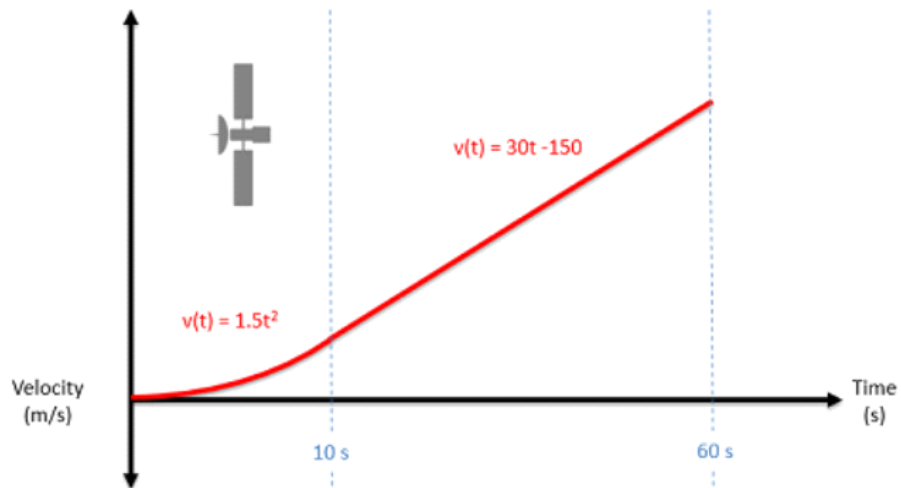


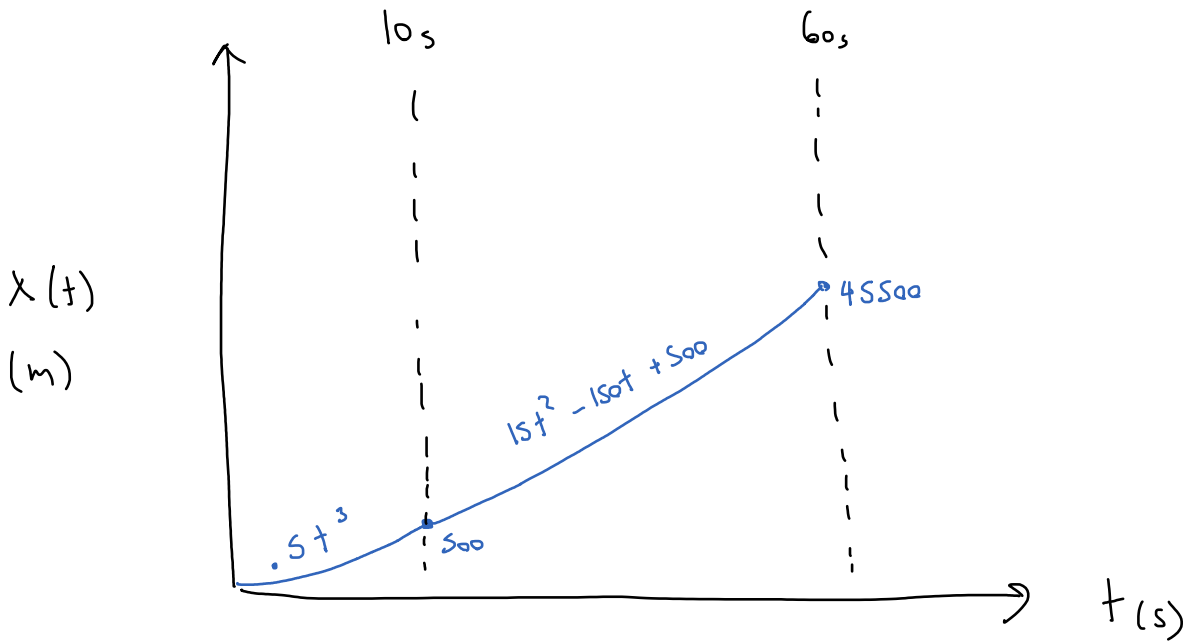
Question 3:

A satellite records the velocity function shown below over a sixty second time period. During that same time period determine the acceleration and position functions and draw these functions on a plot.



$$\text{I} \quad a(t) = \frac{dV}{dt} = \frac{d(1.5t^2)}{dt} = 3t$$

$$\text{II} \quad a(t) = \frac{dV}{dt} = \frac{d(30t - 150)}{dt} = 30$$



I

$$x(t) = \int v(t) = \int 1.5t^2$$

$$\underline{x(t) = .5t^3 + C}$$

$$x(10) = 500 \text{ m}$$

II

$$x(t) = \int v(t) = \int 30t - 150$$

$$x(t) = 15t^2 - 150t + C$$

$$C = 500$$

$$\underline{x(t) = 15t^2 - 150t + 500}$$