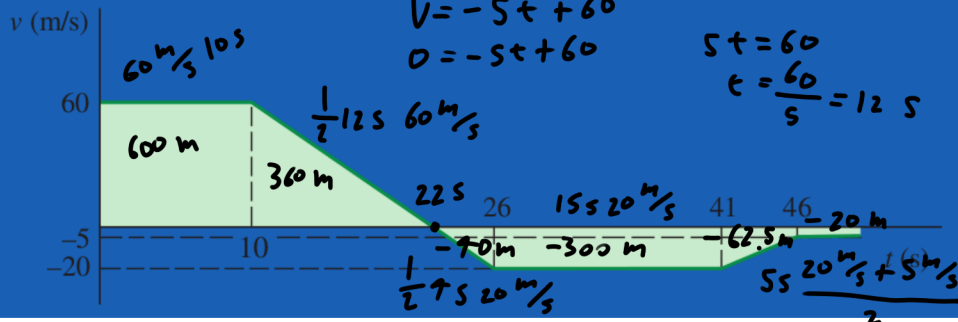
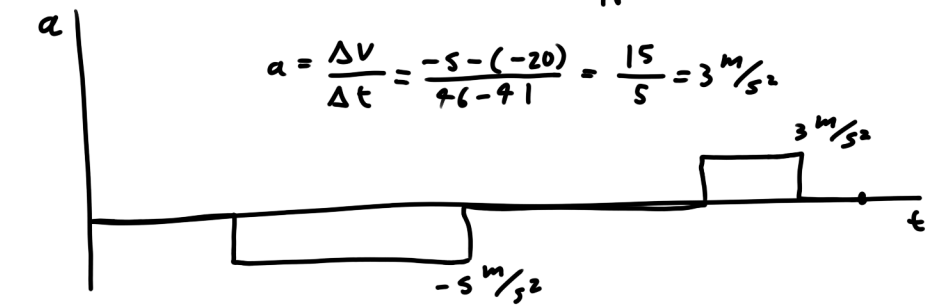
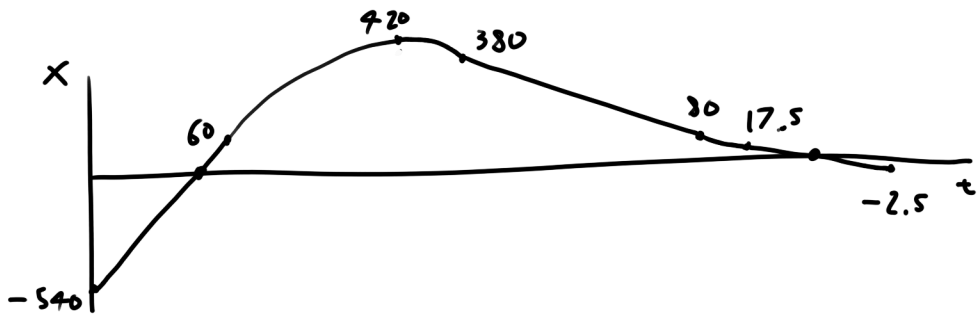
A particle moves in a straight line with the velocity shown in the figure. Knowing that $x = -540$ m at $t = 0$, (*a*) construct the *a*–*t* and *x*–*t* curves for $0 < t < 50$ s, and determine (*b*) the total distance traveled by the particle when $t = 50$ s, (*c*) the two times at which $x = 0$.



$$a = \frac{\Delta v}{\Delta t} = \frac{-20-(-60)}{26-10} = \frac{-30}{16} = -5\ m/s^2$$

$$a = \frac{\Delta v}{\Delta t} = \frac{-5-(-20)}{46-41} = \frac{15}{5} = 3\ m/s^2$$





total distance 1382.5 m