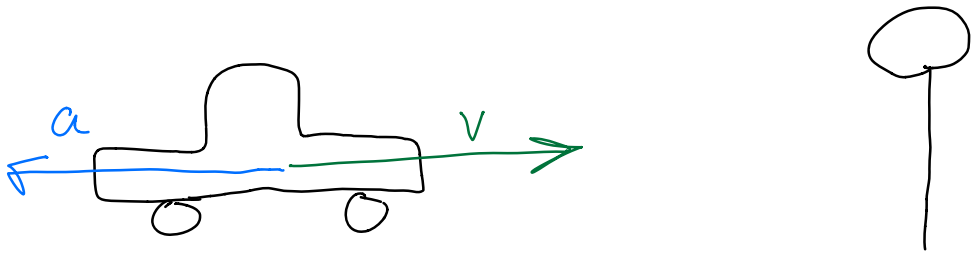
1.



2. Constant force

Let +x be car's current direction of motion

$\vec{F}_{net} = \langle -8000, 0, 0 \rangle$ N

$p_x(t) = p_{xi} + F_x t$ ← momentum principle for a constant force

$x(t) = x_i + v_{xi} t + \frac{1}{2} \frac{F_x}{m} t^2$

Car comes to rest when $p_x(t) = 0$

$0 = p_{xi} + F_x t$

$t = \frac{-p_{xi}}{F_x} = \frac{-(1400 \text{ kg})(20 \text{ m/s})}{-8000 \text{ N}} = 3.5 \text{ s}$

Now find $x(3.5)$. Call x_i 0

$$x(3.5) = (20)(3.5) - \frac{1}{2}\frac{8000}{1400}(3.5)^2$$

$$x = 35 \text{ m}$$

35 m < 40 m, so car does stop in time!