

food fight in space

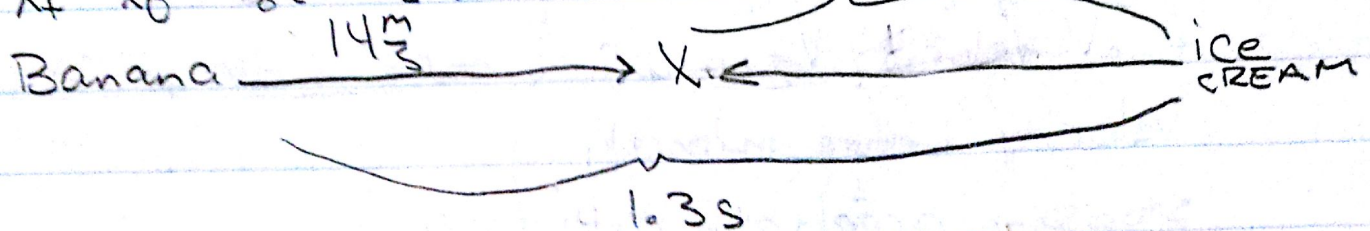
Banana = $14 \frac{m}{s}$ collision = 6m after 1.3s

$$x_f = x_0 + v_0 t + \frac{1}{2} a t^2$$

$$v_f = v_0 + a t$$

$$v_f^2 = v_0^2 + 2 a \Delta x$$

$$x_f - x_0 - v_0 t = \frac{1}{2} a t^2$$



$$1. \frac{\Delta x}{\Delta t} = v(x) = \frac{6m}{1.3s} = \boxed{4.61538 \frac{m}{s}}$$

2. Banana = $14 \frac{m}{s}$ collision after 1.3s

$$v_f = v_0 + a t$$

$$0 \frac{m}{s} = 14 \frac{m}{s} + a(1.3s)$$

$$\frac{-14 \frac{m}{s}}{1.3s} = a = -10.7692 \frac{m}{s^2}$$

$$x_f = x_0 + v_0 t + \left(\frac{1}{2}\right) a t^2$$

$$x_f - x_0 = 14 \frac{m}{s}(1.3s) - \left(\frac{1}{2}\right) 10.7692 \frac{m}{s^2} (1.3s)^2$$