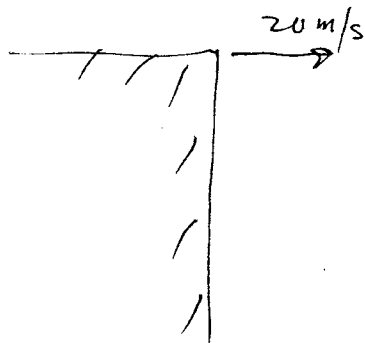


6.28



a) $t = 0,25 \text{ s}$

$$x = v_{0x} t + \frac{1}{2} a_x t^2$$

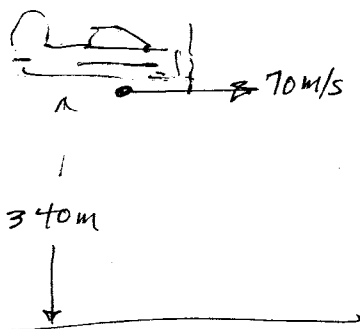
$$x = 20(0,25) = 5 \text{ m}$$

b) $y = v_{0y} t + \frac{1}{2} a_y t^2$

$$= (0)t + \frac{1}{2}(10)(0,25)^2$$

$$= \boxed{0,3125 \text{ m}}$$

6.29



$$y = v_{0y} t + \frac{1}{2} a_y t^2$$

$$340 = \frac{1}{2}(10)t^2$$

$$t^2 = 68$$

$$t = \sqrt{68} = 8,246 \text{ s}$$

$$x = v_{0x} t + \frac{1}{2} a_x t^2$$

$$= 70(8,246)$$

$$= \boxed{577 \text{ m}}$$

Note: the initial velocity of the package is that of the airplane.

6.30

$$v_{0x} = 15 \text{ m/s}$$

$$y = 20 \text{ m}$$

$$y = v_{0y} t + \frac{1}{2} a_y t^2$$

$$20 = \frac{1}{2}(10)t^2$$

$$t = 2 \text{ s.}$$

$$x = v_{0x} t + \frac{1}{2} a_x t^2$$

$$= (15)(2) = \boxed{30 \text{ m}}$$

6.33

$$v_{0x} = 40 \text{ m/s}$$

$$t = 3 \text{ s.}$$

$$v_x = v_{0x} + a_x t$$

$$= \boxed{40 \text{ m/s}}$$

$$v_y = v_{0y} + a_y t$$

$$= 10(3) = \boxed{30 \text{ m/s}}$$