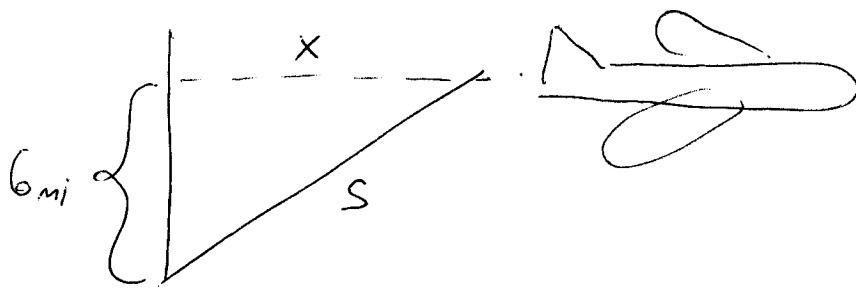


2.8

#20)



$$\Rightarrow x^2 + 6^2 = s^2$$

know $s = 10$
 $y = 6$

$$\frac{ds}{dt} = -240$$

take derivatives,

$$\Rightarrow 2x \frac{dx}{dt} + 0 = 2s \frac{ds}{dt}$$

Solve for $\frac{dx}{dt} \Rightarrow \frac{dx}{dt} = \frac{2s}{2x} \frac{ds}{dt}$

$$= \frac{10}{x} \cdot (-240)$$

to get x , we use Pythagoras' theorem,

$$x^2 + 6^2 = 10^2 \Rightarrow x^2 = 100 - 36 = 64$$

$$x = 8$$

$$\Rightarrow \frac{dx}{dt} = \frac{10}{8} \cdot (-240)$$

$$= -300 \text{ miles/hr}$$