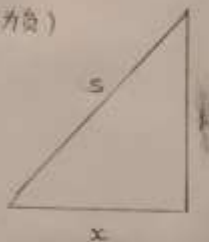


$$(2) \quad x^2 + h^2 = s^2$$

(向右为负)

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

$$\begin{aligned} \text{已知 } \frac{ds}{dt} &= -3, \quad v_x = -\frac{3s}{x} \\ &= -\frac{3s}{\sqrt{s^2 - h^2}} \end{aligned}$$



$$\begin{aligned} \text{当 } 5 \text{ s 时, } s &= 40 - 5(3) \\ &= 25 \text{ m} \end{aligned}$$

$$\begin{aligned} v_x &= -\frac{3(25)}{\sqrt{25^2 - 20^2}} \\ &= -5 \text{ m/s} \end{aligned}$$

速度大小为 5 m/s, 方向向右

$$\left(\frac{dx}{dt}\right)^2 + x \frac{d^2x}{dt^2} = \left(\frac{ds}{dt}\right)^2 + s \frac{d^2s}{dt^2}$$

收绳速度不变,  $\frac{d^2s}{dt^2} = 0$

$$\frac{d^2x}{dt^2} = a_x = \frac{(3)^2 - (-5)^2}{x}$$

$$\begin{aligned} &= \frac{-16}{\sqrt{25^2 - 20^2}} \\ &= -1.1 \text{ ms}^{-2} \end{aligned}$$

加速度大小为 1.1 ms<sup>-2</sup>, 方向向右

联系方式: \_\_\_\_\_