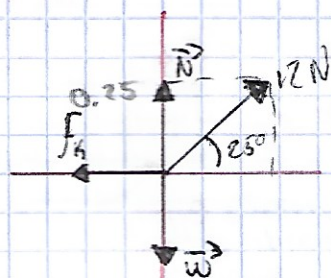




d)



a) $a_x = \frac{T \cos 25}{m} - \mu_k g$

$$a_x = \frac{12 \cos 25}{3.1} - 0.25(9.81)$$

$a_x = 8.6 \text{ m/s}^2$

b) $t = \sqrt{\frac{2\Delta x}{a_x}}$

$$t = \sqrt{\frac{2(0.2)}{8.6}}$$

$t = 0.21 \text{ s}$

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

$v_x = (8.6)(0.21)$ $v_x = 1.8 \text{ m/s}$

c) $T = \frac{a_x(m) + \mu_k g}{\sin 25} = \frac{8.6(3.1) + 0.25(9.81)}{\sin 25}$

$T = 68.88 \text{ N}$