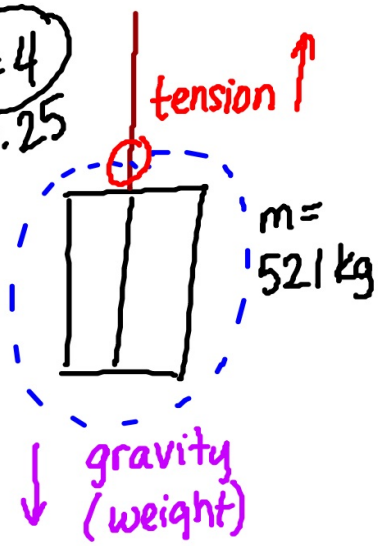
#4 p.25



$\vec{F}_T = 6580\ N, up\ (+)$ (6.58×10^3)

$\vec{F}_g = 5210\ N, down\ (-)$

$F_{net} = \sum F_y$

$= F_T - F_g$

$F_{net} = 1370\ N, up$

$F_g = mg$

$= (521\ kg)(10\ \frac{m}{s^2})$

$F_g = 5210\ N$

$F_{net} = ma$, so

$a = \frac{F_{net}}{m} = \frac{1370\ N}{521\ kg}$

$a = 2.63\ \frac{m}{s^2}$ up

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p.26 #9

$m = 67.2\ kg$ } Given

$a = 7.2\ \frac{m}{s^2}$ }

$\vec{F}_{air} = \_\_ N$ } Unknown

$F_{net} = ma$ } Eqn.

$= (67.2\ kg)(7.2\ \frac{m}{s^2})$

$F_{net} = 483.84\ N$

$F_{net} = 483.84\ N, up$

$F_{net} = F_{air} - F_g$

$483.84\ N = F_{air} - 672\ N$

$+672\ N \qquad +672\ N$

$1155.84\ N$

$F_{air} = 1200\ N$

Eqn.

$F_g = mg$

$= (67.2\ kg)(10\ \frac{m}{s^2})$

$F_g = 672\ N, down$

p. 26 (#7)

Given:

$v_i = 0.0 \frac{m}{s}$

$t = 0.0121 s$

$v_f = 50 \frac{m}{s}$

$m = 0.167 kg$

Unknown:

(i) $\bar{a} = \_\_\_ \frac{m}{s^2}$

$\vec{F}_{app} = \_\_\_ N$

Eqn:

(i) $\bar{a} = \frac{\Delta V}{\Delta t} = \frac{v_f - v_i}{t}$

$\bar{a} = \frac{50 - 0 \frac{m}{s}}{.0121 s} = 4132.23 \frac{m}{s^2}$

(i) $\bar{a} = 4000 \frac{m}{s^2}$ (1 SF)

$4130 \frac{m}{s^2}$ (3 SF)

$4100 \frac{m}{s^2}$ (2 SF)

(ii) $F_{net} = F_{app}$

$F_{app} = m a$

$= (.167 kg)(4132.23 \frac{m}{s^2})$

$F_{app} = \pm 690.08 N$

$700 N$ (1 SF) $6.90 \times 10^2 N$