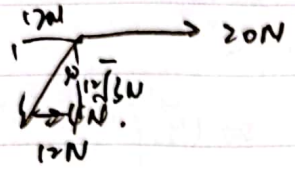
Ch 5.

7. $\sum F_{合} = m\cdot a = 24N$ →



(a) $\vec{F} = (-32N)\vec{i} + (-12\sqrt{3}N)\vec{j}$.

(b) $|\vec{F}| = 38.2N$

(c) 角与 B 成 $\arctan(-0.65)$

13. 令 $T_{绳} = T$. 有 $a_1 = \frac{T}{2m}$ $a_2 = \frac{T}{m}$. $a_3 = \frac{3mg-2T}{3m}$.

有 $\frac{1}{2}\cdot\frac{T}{2m}\cdot t^2 + \frac{1}{2}\cdot\frac{T}{m}\cdot t^2 = 2\cdot\frac{1}{2}\cdot\frac{3mg-2T}{3m}\cdot t^2$

$\frac{T}{2m} + \frac{T}{m} = \frac{6mg-4T}{3m}$ $\frac{12}{2}T = 6mg$ $T = \frac{12}{17}mg$.

$\therefore a_2 = \frac{9}{17}g \approx 5.2m/s^2$.

40. $a_{ele} = 9.8 - 8.3 = 1.5m/s^2$ 方向向下

$\therefore mg - T = m\cdot a$ $\therefore T = 2\times10^4 - 3\times10^3 = 1.7\times10^4 N$. 方向向上.

50. $T_{AB} = T_1$ $T_{BC} = T_2$

有 $\begin{cases} 100 - T_1 = 10a \\ T_1 + 300 - T_2 = 30a \\ T_2 = 30a \end{cases}$ ⇒ $300 - 3T_1 = T_2$. $T_1 + 300 = 2T_2$.

$\therefore T_{BC} = \frac{1200}{7}N$. $T_1 = \frac{300}{7}N$. $T_2 = \frac{1200}{7}N$. $a = \frac{40}{7}m/s^2$.

$h_A = \frac{1}{2}at^2 = \frac{1}{2}\cdot\frac{40}{7}\cdot\frac{1}{16} = \frac{5}{28}m$.

5. (a) $\begin{cases} 3.2 - F = 2.3a \\ F = 1.2a \end{cases}$ $\frac{192}{175}$

$a = \frac{32}{35}F = \frac{192}{175}$. $\begin{cases} 3.2 - F = 1.2a \\ F = 2.3a \end{cases}$

$F = \frac{368}{175} \approx 2.1N$

≈ 1.1 N

Date

59. $T_{min} = 150N$.

$\therefore a_{min} = \frac{150-100}{10} = 5m/s^2$.

$$\begin{cases} 150 - T = 15a \\ T - 100 = 10a \end{cases}$$

$a = 2m/s^2$. $T = 130N$.

右面靠向B.

61. $T_{B0} = T_1$ $T_{AB} = T_2$

有 $\begin{cases} 100 - T_2 = 10a \\ T_1 - T_2 = 8a \\ T_2 - 60 = 6a \end{cases}$

$\begin{cases} T_1 - 60 = 14a \\ 40 = 16a \end{cases}$

$a = \frac{5}{2} m/s^2$

$T_1 = 95N$