

Forces #3

- p 75 MC 1, 11, 12
- p 78 Problem 12, 31, 36
- p 112 MC 9, 10, 11
- p 115 Problem 27

(8) E

- Multiple Choice

1) upward moving elevator slows to stop
 • compare F_{cable} vs F_g

(3)

$$F_{c \text{ on } E} < F_{E \text{ on } E}$$

b/c object in motion continues in motion

11) man on scale hold heavy object, lift quick then stop. scale reading?

• Reading \uparrow , return briefly, then \downarrow

12) On scale in elevator, cable snap. Scale reading?

• drops to zero free fall \rightarrow not supporting

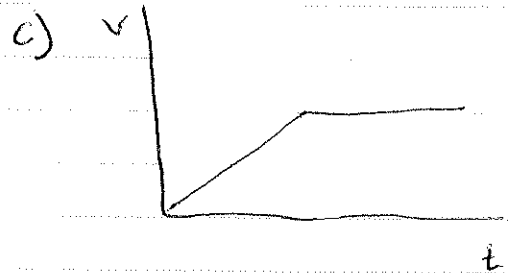
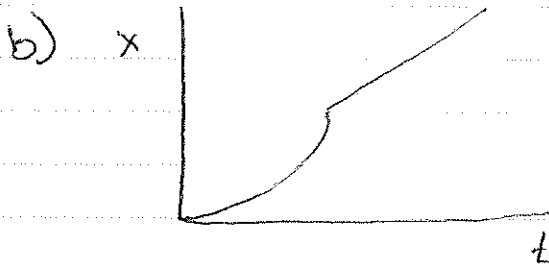
- Problem

12) • Elevator pulled up w/ increase speed
 $F_{\text{cable}} \text{ constant } \neq > \bar{F}_g$

• medium fast F_{cable} abrupt change = F_g
So $F_{\text{net}} = 0$ What happens?

(1)

a) F balance so it's $a = \text{constant speed}$



d) Assumptions?

31) $m = 60 \text{ kg}$
 $a = -7.0 \text{ m/s}^2$
 $F_{\text{air}} = ?$

$$\sum F = ma$$

$$F_{\text{air}} - F_g = ma$$

$$F_{\text{air}} = ma + mg$$

$$= (60)(-7.0 \text{ m/s}^2) + (60 \text{ kg})(9.81 \text{ m/s}^2)$$

(1)

$= 169 \text{ N} \quad 170 \text{ N} \quad 200 \text{ N}$

36) $m = 60 \text{ kg}$
 $a = +3g$
 $F_{\text{scale}} = ?$

$$\sum F = ma$$

$$F_{\text{scale}} - F_g = ma$$

(1)

$$F_{\text{scale}} = ma + mg$$

$$= 4m(3g) + mg$$

$$= 4gm$$

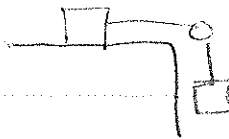
$$= 4(9.81 \text{ m/s}^2)(60 \text{ kg})$$

$$= 2350 \text{ N} \quad 2354 \text{ N}$$

$$= 2400 \text{ N}$$

~~P 112 MC 9 10 11~~
~~P 115 Problem 27 Frick Ranking~~
 Online Tutoria

- Multiple Choice

9)  what is a ?

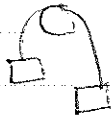
(3)

a) less than g

10) Compare F_t after release

b) less than F_g (if more wouldn't move)

11) Two blocks, different location what conclude?

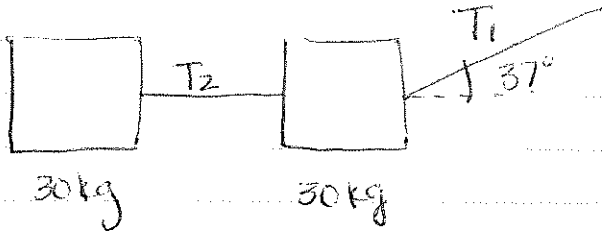


$m_1 = m_2$ b/c at rest balanced

3

- Problems

21)



$$a = 2.0 \text{ m/s}^2$$

a) ① $\Sigma F = ma$ $T_1 \cos \theta = (2m)(a)$

①

use system

$$T_1 = \frac{2ma}{\cos \theta} = \frac{2(60 \text{ kg})(2 \text{ m/s}^2)}{\cos 37^\circ}$$

$$T_1 = 300 \text{ N}$$

b)

② $\Sigma F = ma$

$$T_2 = ma$$

$$T_2 = (30 \text{ kg})(2 \text{ m/s}^2)$$

use box 2

$$T_2 = 60 \text{ N}$$