

Miscellaneous Exercise 7

(2) Forces on child

$$\uparrow \Sigma F = ma$$

$$- 30(10) + 270 = 30a$$

$$\therefore a = -1 \text{ m s}^{-2}$$

Lift is descending and acceleration is downwards \Rightarrow speeding up

30(10)

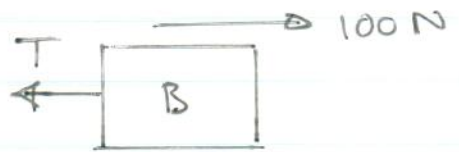


270

Force of floor on child

Miscellaneous Exercise 7

(13) (a) Truck B

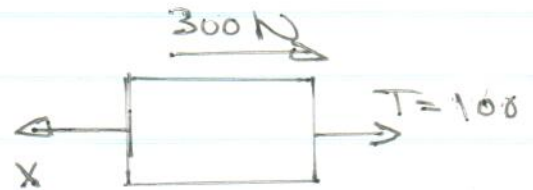


$$\leftarrow \rightarrow \Sigma F = 0 \quad (a=0; \text{ const. speed})$$

$$\therefore T - 100 = 0$$

$$\therefore T = 100 \text{ N}$$

Truck A

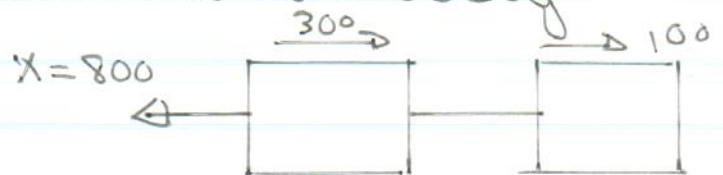


$$\leftarrow \rightarrow \Sigma F = 0: \quad X - 300 - 100 = 0$$

$$\therefore X = 400 \text{ N}$$

(b) Both trucks simultaneously

$$\leftarrow \rightarrow \Sigma F = ma$$



$$800 - 300 - 100 = (1000 + 800) a$$

$$\therefore a = 0,222 \text{ m}\cdot\text{s}^{-2}$$

Exercise 8 A

$$(5) \quad \frac{1}{2} m u^2 + \Sigma W = \frac{1}{2} m v^2$$

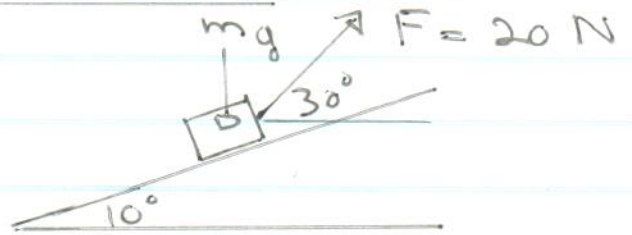
$$\frac{1}{2} 1,2 (20^2) - W_{fr} = 0$$

$$\therefore W = 240 \text{ J}$$

$$\therefore F = \frac{W}{s} = 8 \text{ N}$$

Miscellaneous Exercise 8.

(3)



$$W = 20 \cos(30^\circ - 10^\circ) \cdot 3$$

$$W = 56,4\text{ J}$$