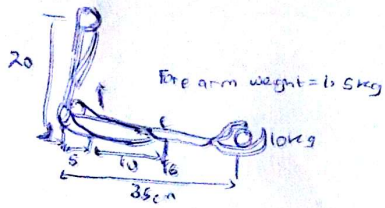


Omgugho matse leštie
16/engob/086



Sol

$$\tan \theta = \frac{5}{20}$$

$$= 14.04^\circ$$

Moment about E

$$\sum ME = 0$$

$$F \cos \theta \times 5 - C \times 1.5 - 10 \times 35 = 0$$

$$F \cos (14.04) \times 5 - 15 \times 1.5 - 10 \times 35$$

$$= 4.8506F - 22.5 - 350$$

$$4.8506F = 372.5$$

$$F = \frac{372.5}{4.8506}$$

$$F = 76.79 \text{ kg}$$

Considering force at x axis

$$\sum F_x = 0$$

$$E_x - F \sin \theta$$

$$E_x - 76.79 \sin 14.04$$

$$E_x = 18.63$$

considering force at y axis

$$\sum F_y = 0$$

$$E_y - 1.5 - 10 + F \cos \theta$$

$$E_y - 1.5 - 10 + 76.79 (\cos 14.04)$$

$$E_y = 62.99$$

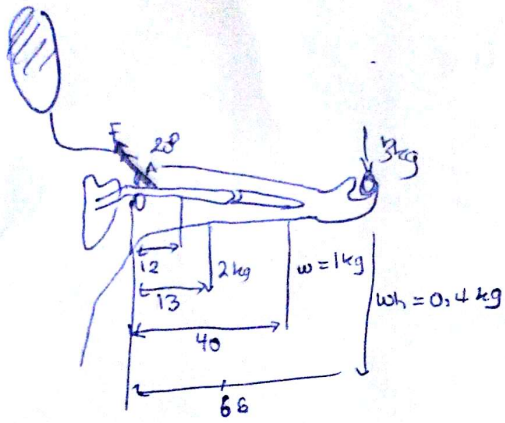
$$E_y = 62.99$$

Resultant force =

$$\sqrt{62.99^2 + 18.63^2}$$

$$= 99.31$$

$$E = 65.68 \text{ kg}$$



$$\cos \theta = \frac{x}{h} \quad h = \frac{x}{\cos \theta} = \frac{13}{\cos 20} = 0.6$$

$$F \cos \theta \times 12 - 2 \times 13 = 1 \times 40 - 65 \times 3 \times 0.4 = 0$$

$$= F \cos \theta \times 12 - 2 \times 13$$

$$F / 261.24$$

$$1.27 F - 144$$

$$F = \frac{144}{11.27}$$

$$F = 12.78 \text{ kg}$$

Considering force at y axis

$$\sum F_y = 0$$

$$E_y = F \sin \theta$$

$$E_y = 12.78 \sin 20$$

$$E_y = 4.371 \text{ kg}$$

Force at x axis

$$\sum F_x = 0$$

$$E_x - 2 - 1 - 3 \times 0.4 + F \cos \theta$$

$$E_x - 4.2 + 12.01$$

$$E_x = 7.809$$

$$= \sqrt{7.809^2 + 4.371^2}$$

$$= 8.949 \text{ kg}$$