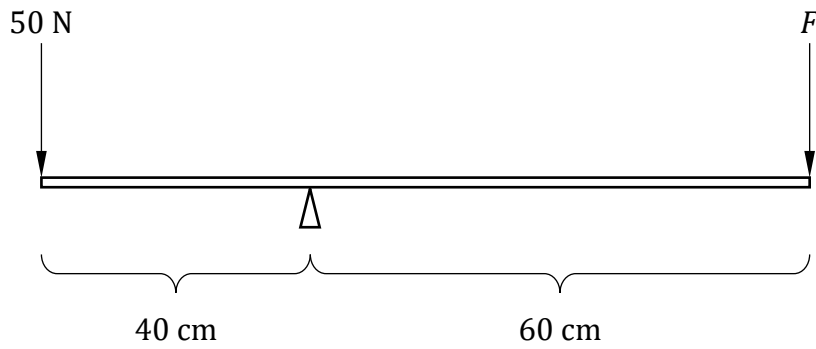


第 22 課：橫桿的平衡條件

已知以下物體處於平衡，求圖中的未知數。

(a)

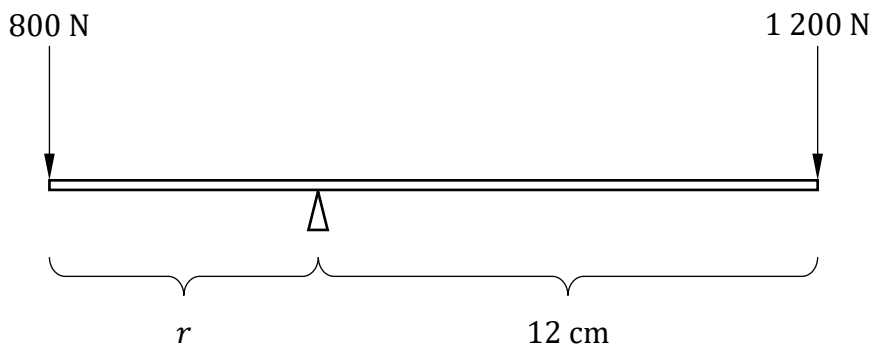


$$(50)(40) = F(60)$$

$$\frac{(50)(40)}{60} = F$$

$$F = 33.3 \text{ N}$$

(b)

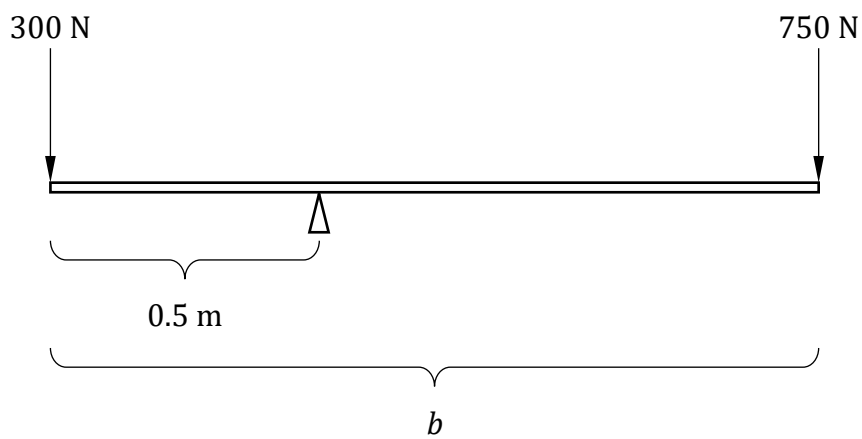


$$(800)r = (1200)(12)$$

$$r = \frac{(1200)(12)}{800}$$

$$= 18 \text{ cm}$$

(c)



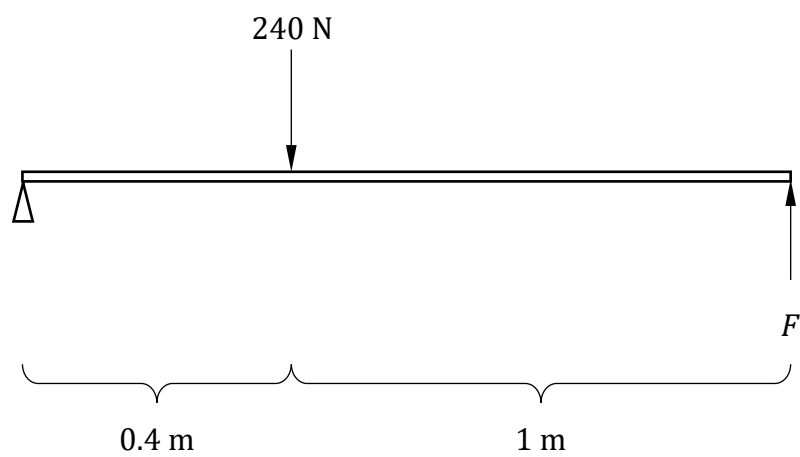
$$(300)(0.5) = (750)(b - 0.5)$$

$$\frac{(300)(0.5)}{750} = b - 0.5$$

$$0.2 = b - 0.5$$

$$b = 0.7 \text{ m}$$

(d)

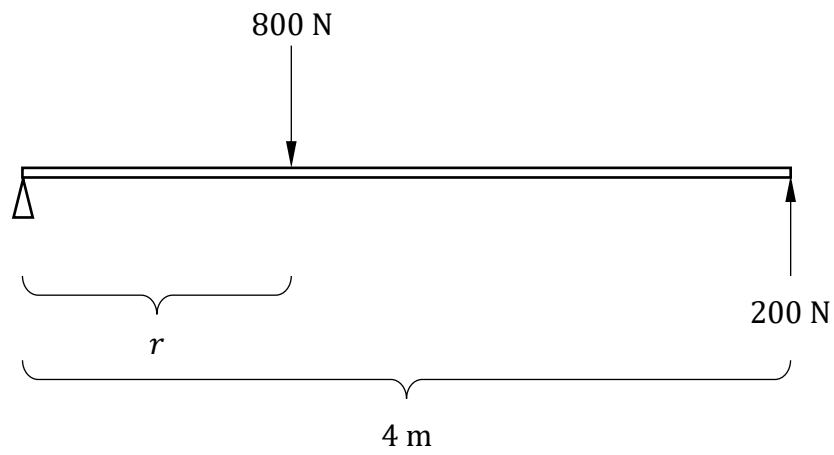


$$(240)(0.4) = F(1 + 0.4)$$

$$\frac{(240)(0.4)}{1.4} = F$$

$$F = 68.6 \text{ N}$$

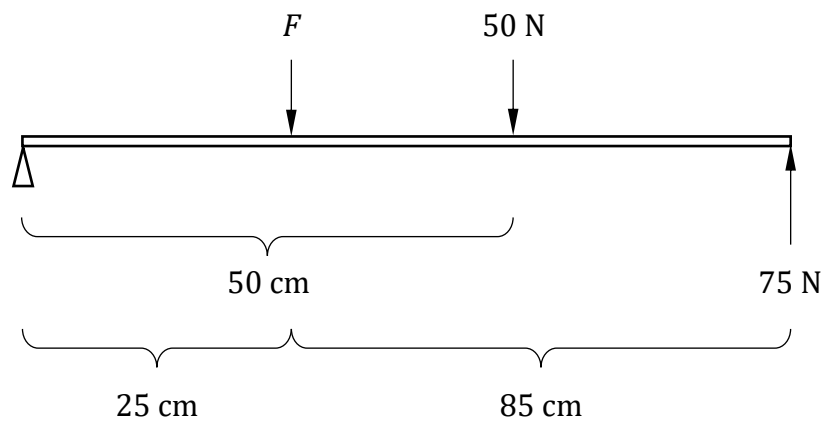
(e)



$$(800)r = (200)(4)$$

$$r = \frac{(200)(4)}{800}$$
$$= 1\text{ m}$$

(f)



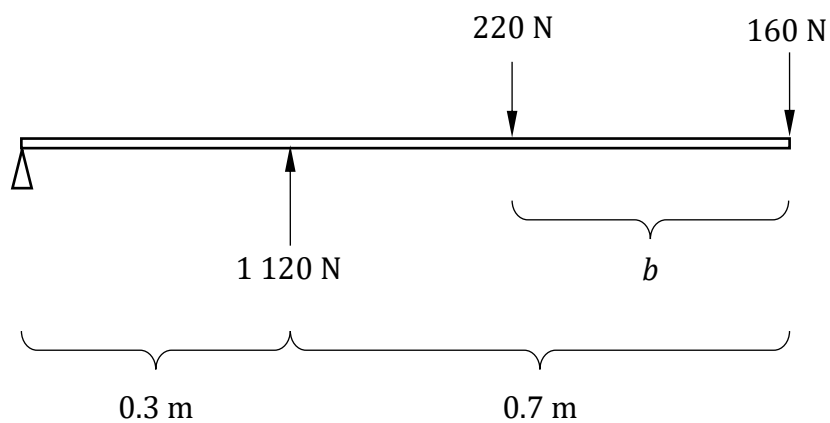
$$F(25) + (50)(50) = (75)(25 + 85)$$

$$F(25) + 2500 = 8250$$

$$F(25) = 5750$$

$$F = \frac{5750}{25}$$
$$= 230\text{ N}$$

(g)



$$(220)(0.3 + 0.7 - b) + (160)(0.3 + 0.7) = (1120)(0.3)$$

$$(220)(1 - b) + 160 = 336$$

$$(220)(1 - b) = 176$$

$$1 - b = \frac{176}{220}$$

$$1 - b = 0.8$$

$$1 = 0.8 + b$$

$$b = 0.2 \text{ m}$$