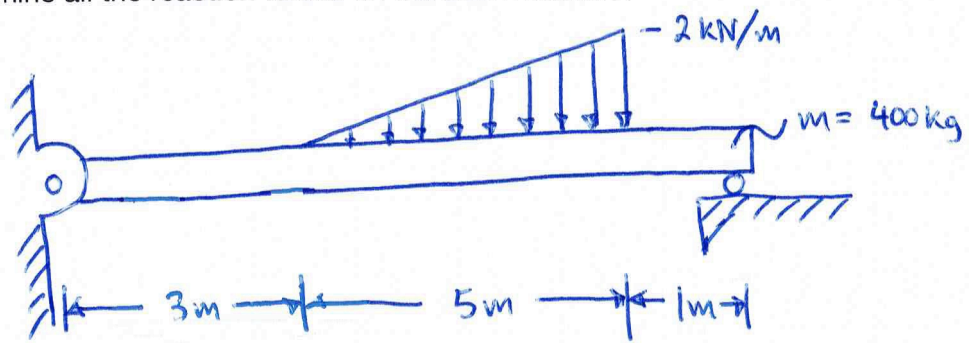
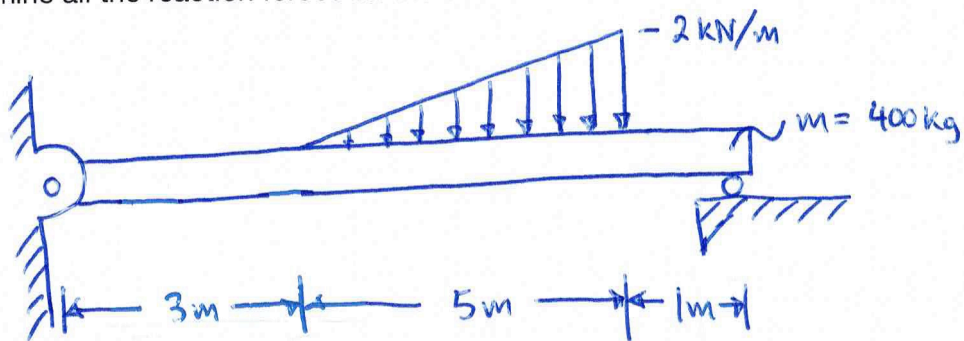


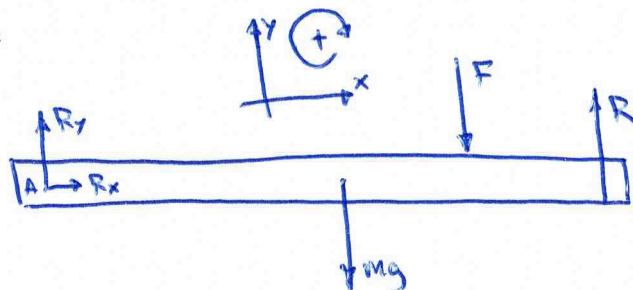
Determine all the reaction forces on the beam member



Determine all the reaction forces on the beam member



FBD:



$$F = \frac{1}{2}(5\text{ m})(2\text{ kN/m}) = 5000\text{ N}$$

$$x = 3 + \frac{2}{3}(5) = 6.3\text{ m}$$

Newton's 2nd Law

$$\sum F_x = m a_x = R_x \quad (1)$$

$$\sum F_y = m a_y = R_y - mg - F + R \quad (2)$$

$$\sum M = I_A \alpha = 4.5 mg + 6.3 F - 9 R \quad (3)$$

Solve (1) for R_x :

$$\boxed{R_x = 0}$$

Solve (3) for R :

$$R = \frac{1}{9} (4.5 mg + 6.3 F)$$

$$= \frac{1}{9} ((4.5)(400)(9.81) + (6.3)(5000))$$

$$\boxed{R = 5481\text{ N}}$$

Solve (2) for R_y :

$$R_y = mg + F - R = (400)(9.81) + 5000 - [5481]$$

$$\boxed{R_y = 3444\text{ N}}$$