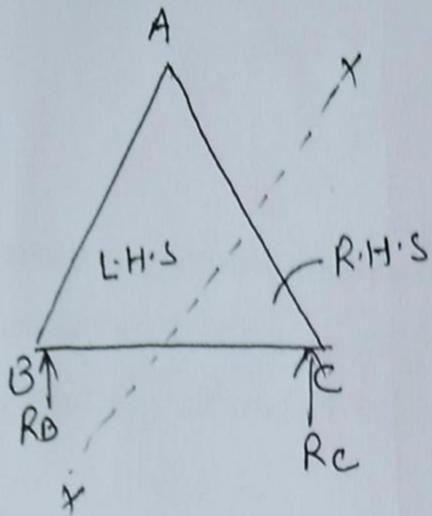
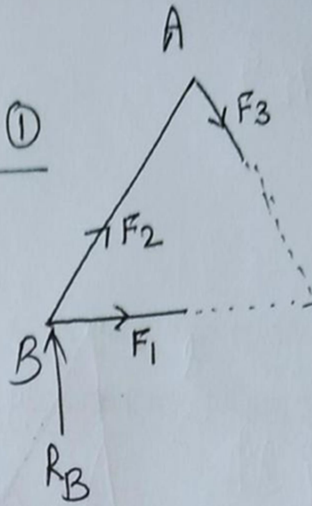


# Trusses

## Section Method ! →



### Step ①



### Step ②

Give the direction of Force in each member.

### Step ③

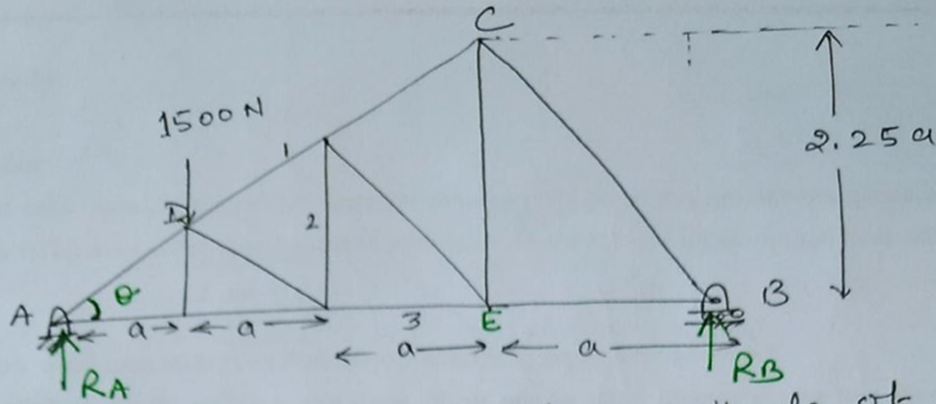
Apply the condition of Equilibrium in the selected part.

$$\sum H = 0$$

$$\sum V = 0$$

$$\& \sum M = 0$$

Q.



Determine the nature and magnitude of the forces in the member 1, 2 & 3.

Sol<sup>n</sup>. First of all find the Reaction  $R_A$  &  $R_B$   
Apply the cond<sup>n</sup> of Equilibrium for ABC truss.

$$\sum H = 0$$

$$\sum V = 0$$

$$\therefore R_A + R_B = 1500 \quad \text{--- (1)}$$

$$\sum M_A = 0$$

$$1500 \times a = R_B \times 4a$$

$$\boxed{R_B = 375 \text{ N}}$$

$$\text{So, } R_A = 1500 - 375$$

$$\boxed{R_A = 1125 \text{ N}}$$

For calculating angle  $\theta$  take  $\triangle AEC$

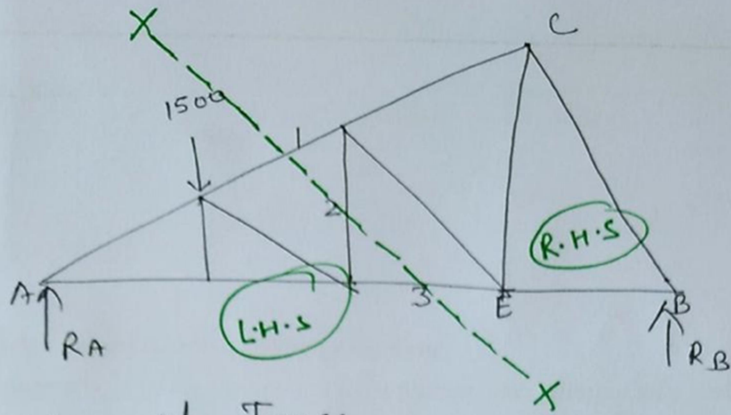
$$\tan \theta = \frac{CE}{AE} = \frac{2.25a}{3a}$$

$$= \frac{2.25a}{3a}$$

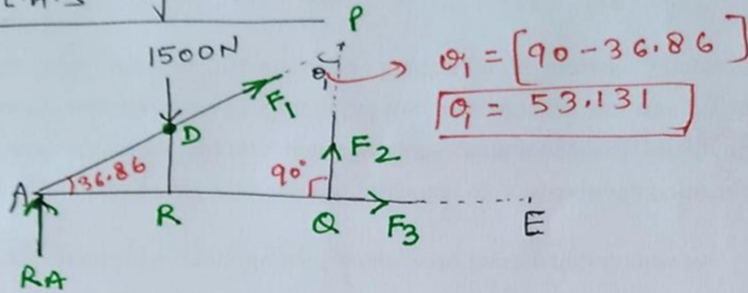
$$\boxed{\tan \theta = 0.75}$$

SHOT ON REDMI 7  
AI DUAL CAMERA

36.86



Take L.H.S of Truss



Apply cond<sup>n</sup> of Equilibrium

$$\sum H = 0$$

$$F_1 \sin \theta_1 + F_3 = 0 \quad \text{--- (2)}$$

$$\sum V = 0$$

$$R_A + F_2 + F_1 \cos \theta_1 - 1500 = 0$$

$$1125 + F_2 + F_1 \cos(53.131) - 1500 = 0$$

$$F_1 \times (0.599) + F_2 = 375 \quad \text{--- (3)}$$

$\Delta APQ$   
 $\sin \theta_1 = 0.800$   
 $\cos \theta_1 = 0.599$

Now

$$\sum M_A = 0$$

$R_A, F_1$  &  $F_3$  will be zero.

So,

$$F_2 \times AQ = 1500 \times AR$$

$$F_2 \times 2\alpha = 1500 \times \alpha$$

$$F_2 = 750 \text{ N (Tension)}$$

Put this in eq<sup>n</sup> (3)

$$F_1 = \frac{375 - 750}{0.599} = -626 \text{ N}$$

$$F_1 = 626 \text{ N (compressive)}$$

Similarly,

$$F_3 = -F_1 \sin \theta_1$$

$$= 626 \times 0.8$$

$$F_3 = 500.8 \text{ N}$$

Tension



SHOT ON REDMI AI DUAL CAMERA