



law of triangle of forces.

$$\frac{3.5}{\sin(120-\theta)} = \frac{2.8}{\sin 45} = \frac{F_1}{\sin(\theta+15)}$$

$$\sin(120-\theta) = 3.5 \sin 45$$

By 4

$$\sin(120-\theta) = 0.8839$$

$$120-\theta = \sin^{-1} 0.8839$$

$$-\theta = 62.114 - 120$$

$$-\theta = -57.885$$

$$\therefore \theta = 57.885$$

$$\therefore F_1 = \frac{2.8 \times \sin(57.885 + 15)}{\sin 45}$$

$$F_1 = 3.784 \text{ kN}$$