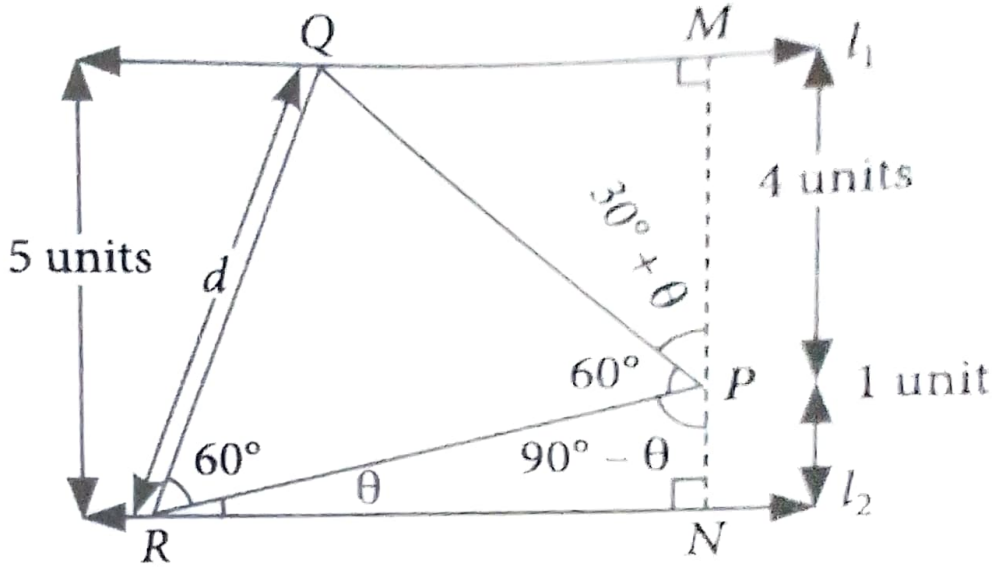
(28) : Let $\angle PRN = \theta$



$\Rightarrow \quad PR = \text{cosec}\,\theta$ and $PQ = 4\sec(30° + \theta)$

For equilateral ΔPQR,

Let $PR = PQ$

$\Rightarrow \quad \text{cosec}\theta = 4\sec(\theta + 30°)$

$\Rightarrow \quad \cos(\theta + 30°) = 4\sin\theta$

$$\Rightarrow \quad \frac{\sqrt{3}}{2}\cos\theta - \frac{1}{2}\sin\theta = 4\sin\theta$$

$$\Rightarrow \quad \tan\theta = \frac{1}{3\sqrt{3}}$$

$\Rightarrow \quad \text{cosec}\theta = \sqrt{28}$

Now, $QR^2 = d^2 = \text{cosec}^2\theta = 28$