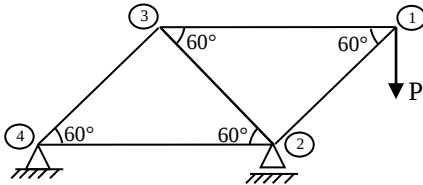


**Travaux dirigés : Système réticulé isostatique**

Déterminer les efforts internes dans les barres par la méthode des nœuds.

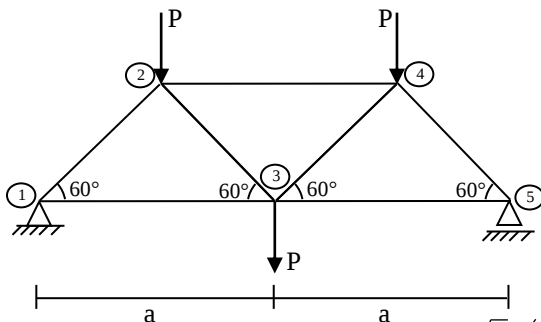
**Exercice 1 :**



$$N_{12} = -\frac{2P}{\sqrt{3}}; N_{13} = N_{34} = -N_{32} = \frac{P}{\sqrt{3}};$$

$$N_{24} = -\frac{P}{2\sqrt{3}}; R_2 = \frac{3P}{2}; R_4 = -\frac{P}{2};$$

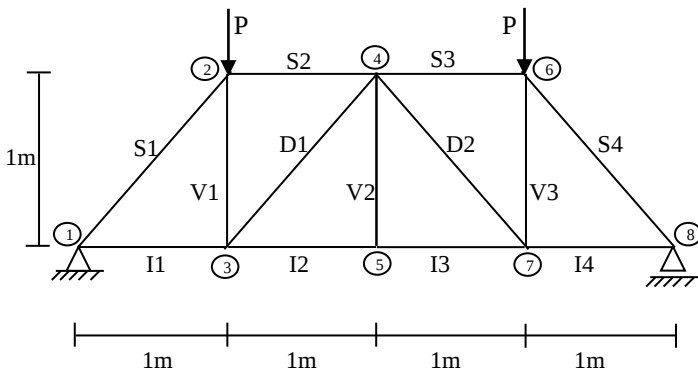
**Exercice 2 :**



$$R_1 = R_5 = \frac{3P}{2}; N_{54} = -P\sqrt{3}; N_{53} = \frac{P\sqrt{3}}{2};$$

$$N_{43} = \frac{P}{\sqrt{3}}; N_{42} = -\frac{2P}{\sqrt{3}}; N_{32} = \frac{P}{\sqrt{3}}; \text{Sym}$$

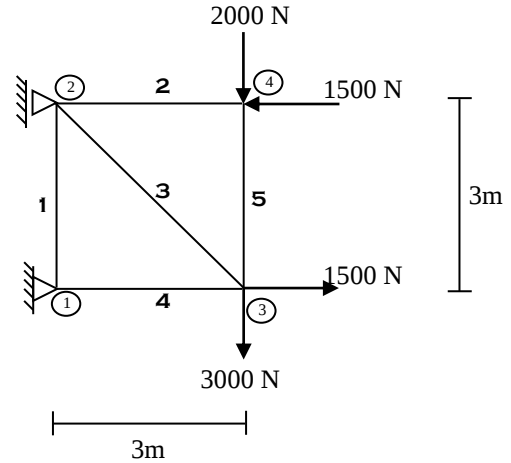
**Exercice 3 :**



$$R_1 = R_8 = P; N_{12} = -\frac{2P}{\sqrt{2}}; N_{13} = N_{35} = N_{57} = N_{78} = P;$$

$$N_{24} = N_{46} = -P; N_{23} = N_{34} = N_{54} = N_{47} = N_{76} = 0;$$

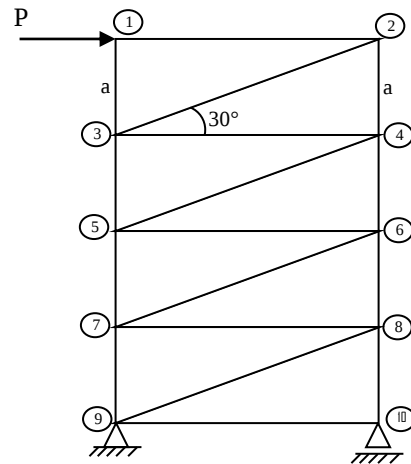
**Exercice 4 :**



$$H_1 = -N_{12} = 5000 \text{ daN}; R_1 = -R_2 = -N_{13} = 3500 \text{ daN};$$

$$N_{42} = -1500 \text{ daN}; N_{43} = -2000 \text{ daN}; N_{23} = 7072 \text{ daN};$$

**Exercice 5 :**



Déterminer les efforts internes par la méthode des sections dans les barres 4,6 et 8,9.

$$-N_{46} = N_{89} = \frac{2P}{\sqrt{3}};$$