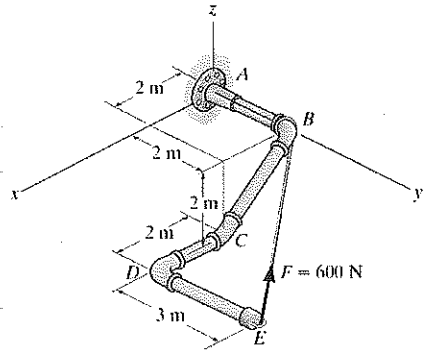


PROBLEM AP-08

GIVEN:

Determine the magnitudes of the components of $F = 600 \text{ N}$ acting along and perpendicular to segment DE of the pipe assembly.

**REQUIRED:**

$$|\vec{F}_{||}|$$

$$|\vec{F}_{\perp}|$$

SOLUTION:

$$\hat{u}_{EB} = \{-0.743\hat{i} - 0.557\hat{j} + 0.371\hat{k}\}$$

$$\vec{F} = F \hat{u}_{EB} = \{-446\hat{i} - 334\hat{j} + 223\hat{k}\} \text{ N}$$

$$\vec{F} \cdot \hat{u}_{ED} = F_{||}$$

$$= \{-446\hat{i} - 334\hat{j} + 223\hat{k}\} \text{ N} \cdot \{-1\hat{j}\}$$

$$F_{||} = 334 \text{ N}$$

$$F_{\perp} = \sqrt{600^2 - 334^2} = 498 \text{ N}$$

$$F_{||} = 334 \text{ N}$$

$$F_{\perp} = 498 \text{ N}$$