PROBLEM 1: THE TRUSS

GIVEN

\[ P = 35 \text{ kN} \]

REQUIRED

Find the internal force in members FG, FH, and EG. Indicate whether the forces are tension or compression.

PROBLEM 2: THE SECOND TRUSS PROBLEM

GIVEN

\[ AB = 5 \text{ @ } 4 \text{m} = 20 \text{m} \]

REQUIRED

Using the method of joints, determine the internal force in each member of the truss. State whether each member is in tension or compression. (Copy your results to the figure above, for ease of checking.)
**PROBLEM 3: THE BEAM PROBLEM**

**GIVEN**

The beam ABC is supported as shown, subjected to a distributed load \( f = 5 \text{kN/m} \) (downward) between points A and B, and a point load \( P = 50 \text{kN} \) upward at point C.

**REQUIRED**

Draw an internal shear and internal couple diagram for the beam. Find the position(s) and magnitude of maximum internal shear (absolute value), and the position(s) and magnitude of maximum internal couple (absolute value).

**PROBLEM 4: THE CABLE PROBLEM**

**GIVEN**

A cable is suspended between two points A and B. Points B is 40m to the right of and 6m higher than point A. The cable has a lowest point 3m lower than point A (9m lower than point B). It supports a downward uniform load of \( w = 300 \text{N/m} \) of horizontal length, including its own weight.

**REQUIRED**

Determine the maximum and minimum values of tension in the cable.
PROBLEM 5: THE FRAME PROBLEM

GIVEN
The plane frame ABCD is subjected to point loads $E = 50\text{kN}$ at A and B and the distributed load $f = 5\text{kN/m}$ in the span BC. Joints B and C are rigid. Joint A is a roller (no horizontal reaction, no couple). Joint D is a pin (no couple).

REQUIRED
Calculate axial member force, internal shear, and internal couple at every location on the frame.