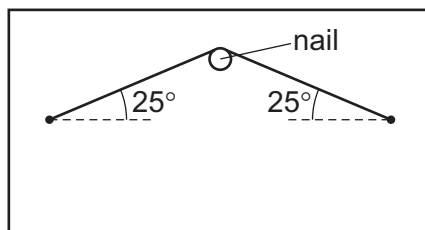


- 18** A picture on a wall is supported by a wire looped over a nail.



The mass of the picture is 4.2 kg.

What is the tension in the supporting wire?

- A** 5.0 N **B** 23 N **C** 49 N **D** 97 N
- 19** A piston in a gas supply pump has an area of 500 cm^2 and it moves a distance of 30 cm during one stroke.
- The pump moves the gas against a fixed pressure of 4000 Pa.
- How much work is done by the piston during one stroke?
- A** 60 J **B** $6.0 \times 10^3 \text{ J}$ **C** $6.0 \times 10^5 \text{ J}$ **D** $6.0 \times 10^7 \text{ J}$
- 20** A railway engine accelerates a train of total mass 1200 tonnes (1 tonne = 1000 kg) from rest to a speed of 75 m s^{-1} .

How much useful work must be done on the train to reach this speed?

- A** $1.7 \times 10^6 \text{ J}$ **B** $3.4 \times 10^6 \text{ J}$ **C** $1.7 \times 10^9 \text{ J}$ **D** $3.4 \times 10^9 \text{ J}$

Space for working