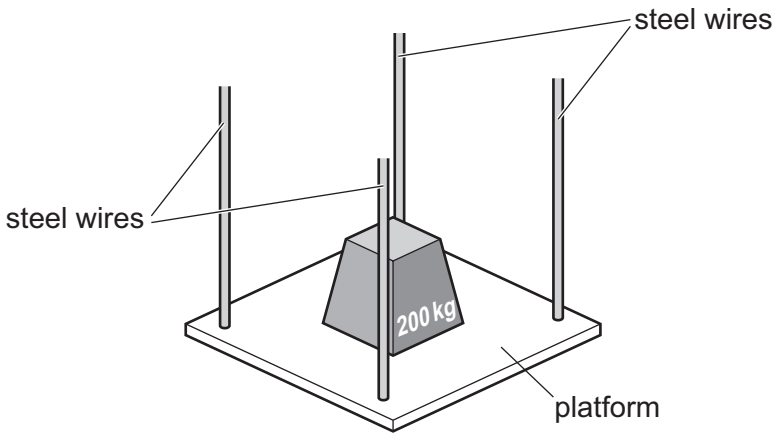
**20** A platform is suspended by four steel wires. Each wire is 5.0 m long and has a diameter of 3.0 mm. The Young modulus of steel is $2.1 \times 10^{11}$ Pa.




The wires obey Hooke's law when a load of mass 200 kg is placed on the platform.

How far will the platform descend because of the extension of the wires?

**A** $1.7 \times 10^{-4}$ m **B** $4.1 \times 10^{-4}$ m **C** $1.7 \times 10^{-3}$ m **D** $6.6 \times 10^{-3}$ m

**21** A tensile force of 7.00 MN is applied to a sample of steel. This causes the sample to extend by 5.00 mm in the direction of the force. The sample obeys Hooke's law.

What is the work done to extend the sample?

**A** 17.5 J **B** 35.0 J **C** 17.5 kJ **D** 35.0 kJ

**22** Two waves X and Y have the same frequency. The amplitude of X is $1.5A_0$ and the amplitude of Y is $2.5A_0$. The waves meet at a point and superpose to form a resultant wave.

For the resultant wave, what is the ratio $\frac{\text{maximum possible intensity}}{\text{minimum possible intensity}}$?

**A** 1.7 **B** 2.8 **C** 4.0 **D** 16