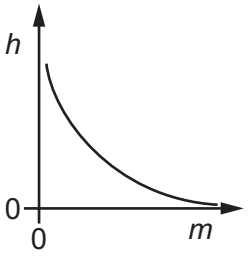
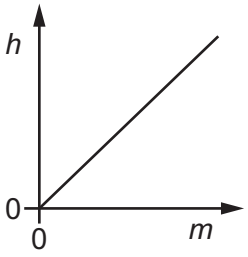
18 Objects with different masses are placed on the horizontal surface of a table. The objects are then raised to different heights above the table. The gain in gravitational potential energy of each object is the same.

Which graph best shows the variation of the height *h* of the objects above the table with their mass *m*?

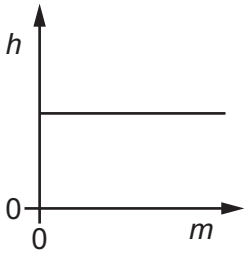
A



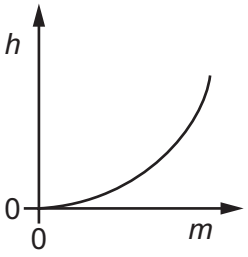
B



C



D



19 Two wires, P and Q, are made from the same metal and hang vertically from a steel girder.

Wire Q has half the length and twice the diameter of wire P.

Identical masses are attached to the bottom of each wire. Both wires obey Hooke's law as they are stretched by the weight of the masses.

What is the ratio $\frac{\text{extension of wire P}}{\text{extension of wire Q}}$?

A $\frac{8}{1}$ **B** $\frac{4}{1}$ **C** $\frac{1}{1}$ **D** $\frac{1}{2}$

20 Which statement about elastic and plastic deformation **must** be correct?

A Elastic deformation and plastic deformation are proportional to the applied force.

B Elastic deformation and plastic deformation cause no change in volume.

C Elastic deformation causes heating of the material but plastic deformation does not.

D Elastic deformation is reversible but plastic deformation is not.