18 A submarine carries a pressure meter so that the crew can work out how far they are below the surface of the sea. At the surface, the meter indicates a pressure of 100 kPa. The density of seawater is 1030 kg m^{-3}.

What is the depth below the surface when the meter reads 450 kPa?

A 34.6 m **B** 44.5 m **C** 340 m **D** 437 m

19 What is plastic deformation?

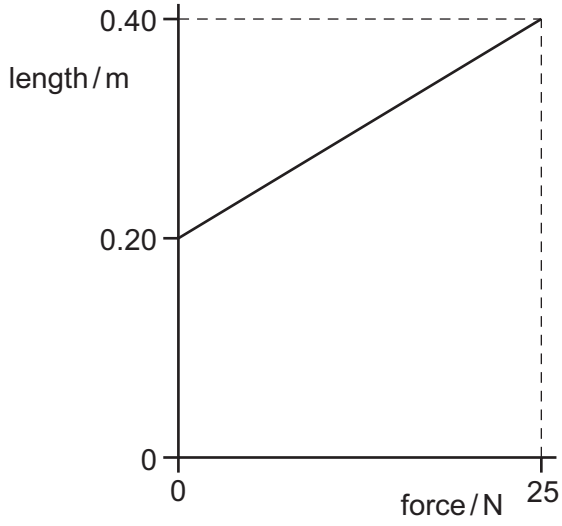
A Plastic deformation occurs when strain is not proportional to stress but when the load is removed the material returns to its original length.

B Plastic deformation occurs if, when the load is removed, the material contracts but a permanent stretching has occurred.

C Plastic deformation occurs until the extension is no longer proportional to the load.

D Plastic deformation occurs when the material extends so that strain is directly proportional to stress.

20 The graph shows how the length of a particular rubber cord varies as force is applied.



What is the maximum strain energy in this deformed rubber cord?

A 2.5 J **B** 5.0 J **C** 7.5 J **D** 10 J

21 What is the relationship between the intensity I and the amplitude a of a wave?

A $\frac{I}{a}$ = constant

B $\frac{I}{a^2}$ = constant

C I a = constant

D I a^2 = constant