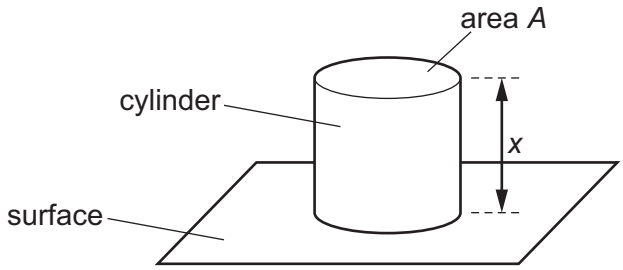
13 A solid metal cylinder stands on a horizontal surface, as shown.

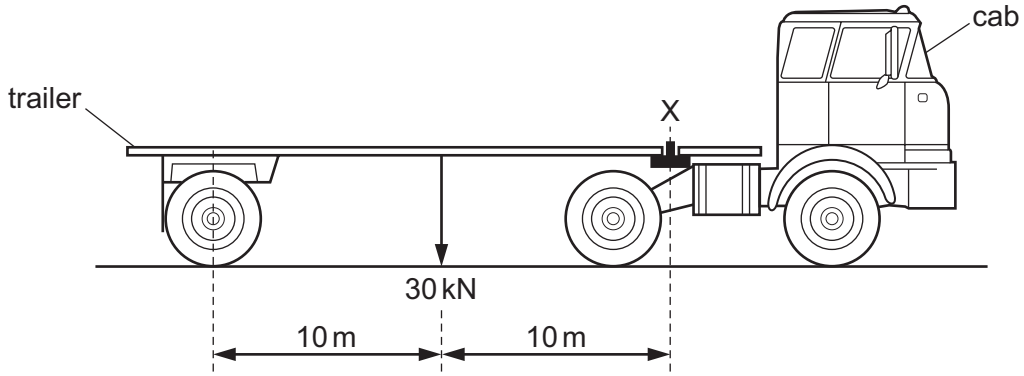


The cylinder has length x and cross-sectional area A. The cylinder exerts a pressure p on the surface. The acceleration of free fall is g.

Which expression gives the density of the metal of the cylinder?

A $\frac{gx}{p}$ **B** $\frac{p}{gx}$ **C** $\frac{gx}{pA}$ **D** $\frac{pA}{gx}$

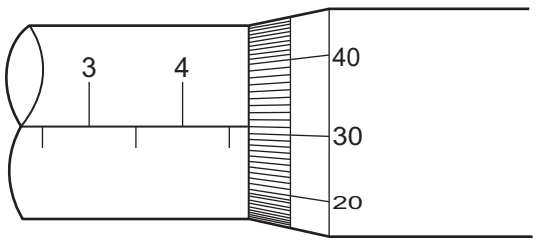
14 A trailer of weight 30 kN is attached to a cab at X, as shown in the diagram.



What is the upward force exerted at X by the cab on the trailer?

A 3 kN **B** 15 kN **C** 30 kN **D** 60 kN

15 The diameter of a solid metal sphere is measured using a micrometer screw gauge. The diagram shows an enlargement of the shaft of the micrometer screw gauge when taking the measurement.



The mass of the sphere is 0.450 g.

What is the density of the metal used to make the sphere?

A 965 kg m^{-3} **B** 1340 kg m^{-3} **C** 7720 kg m^{-3} **D** 10 700 kg m^{-3}