1 The equation relating pressure and density is $p = \rho gh$.

How can both sides of this equation be written in terms of base units?

A $[\mathrm{N\,m^{-1}}] = [\mathrm{kg\,m^{-3}}]\,[\mathrm{m\,s^{-1}}]\,[\mathrm{m}]$

B $[\mathrm{N\,m^{-2}}] = [\mathrm{kg\,m^{-3}}]\,[\mathrm{m\,s^{-2}}]\,[\mathrm{m}]$

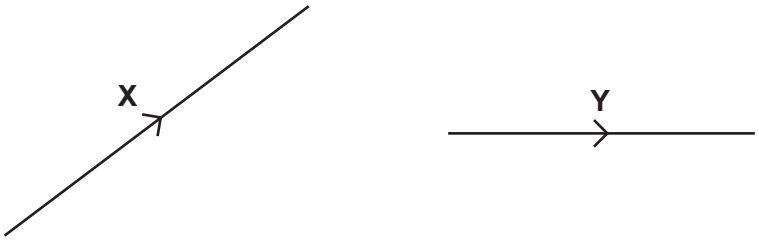
C $[\mathrm{kg\,m^{-1}\,s^{-2}}] = [\mathrm{kg\,m^{-3}}]\,[\mathrm{m\,s^{-2}}]\,[\mathrm{m}]$

D $[\mathrm{kg\,m^{-1}\,s^{-1}}] = [\mathrm{kg\,m^{-1}}]\,[\mathrm{m\,s^{-2}}]\,[\mathrm{m}]$

2 What is a reasonable estimate of the diameter of an alpha particle?

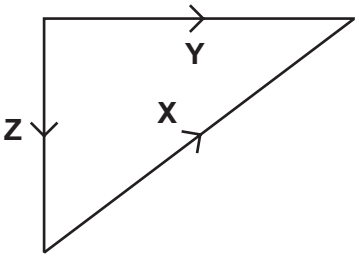
A $10^{-15}\,\mathrm{m}$ **B** $10^{-12}\,\mathrm{m}$ **C** $10^{-9}\,\mathrm{m}$ **D** $10^{-6}\,\mathrm{m}$

3 The diagram shows two vectors **X** and **Y**.

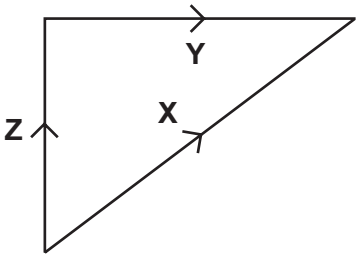


In which vector triangle does the vector **Z** show the magnitude and direction of vector **X**–**Y**?

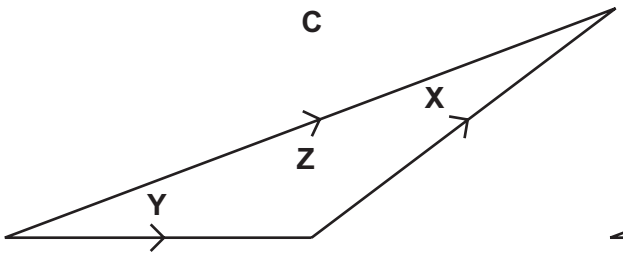
A



B



C



D