

Materials – A2 Physics P1

1. No. 26

Two wires **X** and **Y** have the same extension for the same load.

X has a diameter d and is made of a metal of density ρ and Young modulus E .

Y has the same mass and length as **X** but its diameter is $2d$.

What are the density and the Young modulus of the metal from which **Y** is made?

[1 mark]

	Density	Young modulus	
A	$\frac{\rho}{2}$	$\frac{E}{4}$	
B	$\frac{\rho}{2}$	$4E$	
C	$\frac{\rho}{4}$	$\frac{E}{4}$	
D	$\frac{\rho}{4}$	$4E$	