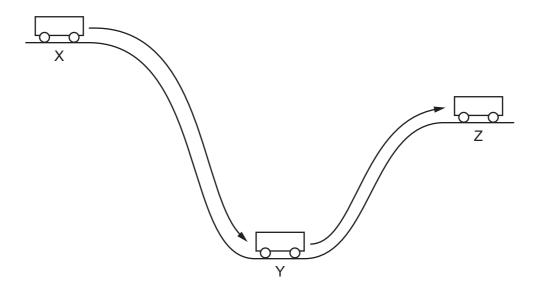
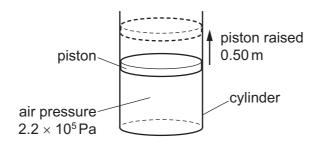
16 A trolley starts from rest at X. It rolls down to Y and eventually comes to rest at Z.



Which row is a possible summary of the energy changes during this process?

	X to Y	Y to Z	
Α	$PE \rightarrow KE$	$KE \rightarrow PE$	key
В	$PE \rightarrow KE$	$KE \rightarrow PE + heat$	PE = potential energy
С	PE → KE + heat	$KE \rightarrow PE$	KE = kinetic energy
D	PE → KE + heat	$KE \rightarrow PE + heat$	

17 A cylinder is heated, causing the air inside to expand at a constant pressure of $2.2 \times 10^5 \, \text{Pa}$.



The expansion of the air causes the piston to rise through a vertical distance of $0.50\,\mathrm{m}$, doing 11 kJ of work. Frictional forces are negligible.

What is the cross-sectional area of the piston?

- **A** $1.0 \times 10^{-4} \, \text{m}^2$
- **B** $2.5 \times 10^{-2} \, \text{m}^2$
- $C = 5.0 \times 10^{-2} \, m^2$
- **D** $1.0 \times 10^{-1} \,\mathrm{m}^2$