

- 13 At sea level, atmospheric pressure is 100 kPa and the density of air is 1.3 kg m^{-3} .

Assume that the density of air decreases linearly with height above sea level.

What is an estimate of the total height of the atmosphere based on this information?

- A 7.8 km B 16 km C 77 km D 150 km

- 14 Trains supply coal to a power station. The table shows quantities describing the operation of the power station.

	symbol	unit
power station average output	P	W
number of trains per day	N	
mass of coal on a train	M	kg
energy from 1 kg of coal	E	J
number of seconds in one day	S	

Which expression gives the efficiency of the power station?

- A $\frac{PS}{NME}$ B $\frac{PSN}{ME}$ C $\frac{NME}{PS}$ D $\frac{NM}{PSE}$

- 15 A piston in a gas supply pump has an area of 500 cm^2 and it moves a distance of 30 cm.

The pump moves the gas against a fixed pressure of 4000 Pa.

How much work is done by the piston?

- A 60 J B $6.0 \times 10^3 \text{ J}$ C $6.0 \times 10^5 \text{ J}$ D $6.0 \times 10^7 \text{ J}$