

Question number	Answer	Notes	Marks
9	(a) (i)	pressure = force / area;	1
	(ii)	substitution; rearrangement; evaluation; e.g. $1.03 \times 10^6 = \text{force} / 1.13$ (force =) $1.03 \times 10^6 \times 1.13$ (force =) 1.16×10^6 (N)	3 -1 for POT error allow 1.2×10^6 , 1163900 etc.
	(iii)	any two from: MP1. idea that gas particles move randomly; MP2. idea that gas particles collide with all walls of container; MP3. idea that force per unit area is the same on all sides of cylinder;	2 allow move in all directions
	(b) (i)	idea of extrapolating line backwards; absolute zero is the temperature when the pressure is zero;	2 allow if seen on graph allow temperature when line cuts x-axis/temperature axis (may be indicated on graph)
	(ii)	-273 (°C);	1 allow -273.15
	(iii)	straight line with positive gradient drawn; line passes through the origin;	2 judge by eye

Total for Question 9 = 11 marks