

gridlocks – can you unlock the grid?

Gas laws 1

Before you answer the puzzle below fill in the table showing what you do to convert to SI units

Eg $\div 1000$

non SI unit	SI unit	conversion into SI unit
atm		
$^{\circ}\text{C}$		
cm^3		
litre		

Gridlock 1

Each row, column and 2 x 2 box contains information about the four non SI units above. Use your problem solving skills and the answers in the table above to fill in the blank boxes.

non SI units		conversion into SI units	
	atm		$\div 1000$
			$\times 100,000$
$+ 273$			cm^3
conversion into SI units			non SI units

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Gridlock 2

Each row, column and 2 x 2 box contains four different temperatures.

temperature in °C		temperature in K	
0			373
	100	273	
	298		
		-273	
temperature in K		temperature in °C	

Gridlock 3

This puzzle contains data for p, V, n, and T. Convert the pressure, volume and temperature into SI units, solve the puzzle and calculate the value of n. ($R = 8.31 \text{ J/K/mol}$)

quantities with SI units		quantities with non SI units	
			1 atm
		25 °C	1 litre
	25 °C		
1 litremol		
quantities with non SI units		quantities with SI units	

Gas laws 1 – answers

Before you answer the puzzle below fill in the table showing what you do to convert to SI units

Eg $\div 1000$

non SI unit	SI unit	conversion into SI unit
atm	Pa	$\times 100,000$
$^{\circ}\text{C}$	K	$+ 273$
cm^3	m^3	$\div 1 \text{ million}$
litre	m^3	$\div 1000$

Puzzle 1 – answers

Each row, column and 2 x 2 box contains information about the four non SI units above Use your problem solving skills and the answers in the table above to fill in the blank boxes.

non SI units		conversion into SI units	
cm^3	atm	$+ 273$	$\div 1000$
litre	$^{\circ}\text{C}$	$\div 1 \text{ million}$	$\times 100,000$
$\times 100,000$	$\div 1 \text{ million}$	litre	$^{\circ}\text{C}$
$+ 273$	$\div 1000$	atm	cm^3
conversion into SI units		non SI units	

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Puzzle 2 – answers

Each row, column and 2 x 2 box contains four different temperatures.

temperature in °C		temperature in K	
0	-273	298	373
25	100	273	0
0	298	100	0
373	273	-273	25
temperature in K		temperature in °C	

Puzzle 3 – answers

This puzzle contains data for p, V, n, and T. Convert the pressure, volume and temperature into SI units, solve the puzzle and calculate the value of n. (R = 8.31 J/K/mol)

quantities with SI units		quantities with non SI units	
298 K	0.001 m ³	0.040 mol	1 atm
0.040 mol	100000 Pa	25 °C	1 litre
1 atm	25 °C	0.001 m ³	0.040 mol
1 litre	0.040 mol	100000 Pa	298 K
quantities with non SI units		quantities with SI units	