

Moles equations (with $pV = nRT$)

Before you answer the puzzle below fill in the table showing the correct equation for moles given the different types of data using:

volume of gas	number of particles	mass	volume & conc. of solution
Data		Equation	
		$\text{moles} = \frac{\text{mass}}{M_r}$	
		$\text{moles} = \frac{pV}{RT}$	
		$\text{moles} = \frac{\text{number}}{6.02 \times 10^{23}}$	
		$\text{moles} = \text{conc.} \times \text{vol(in dm}^3\text{)}$	

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.

data		equation	
	mass		$\text{moles} = \frac{pV}{RT}$
volume & conc. of solution			$\text{moles} = \frac{\text{mass}}{M_r}$
$\text{moles} = \frac{pV}{RT}$			number of particles
equation		data	

gridlocks – can you unlock the grid?

Gridlock 2

Each row, column and 2 x 2 box contains information about the four non SI units above.

data		equation	
mass			moles = conc. × vol(in dm ³)
	volume & conc. of solution	moles = $\frac{\text{mass}}{M_r}$	
	moles = $\frac{\text{number}}{6.02 \times 10^{23}}$		
		volume of gas	
equation		data	

Gridlock 3

Each row, column and 2 x 2 box contains information about the four non SI units above.

data		equation	
volume of gas			
		moles = conc. × vol(in dm ³)	
		mass	
	moles = $\frac{\text{number}}{6.02 \times 10^{23}}$		
equation		data	

Moles equations (with $pV = nRT$) – answers

Before you answer the puzzle below fill in the table showing the correct equation for moles given the different types of data using:

volume of gas	number of particles	mass	volume & conc. of solution
Data		Equation	
mass		$\text{moles} = \frac{\text{mass}}{M_r}$	
volume of gas		$\text{moles} = \frac{pV}{RT}$	
number of particles		$\text{moles} = \frac{\text{number}}{6.02 \times 10^{23}}$	
volume & conc. of solution		$\text{moles} = \text{conc.} \times \text{vol(in dm}^3\text{)}$	

Gridlock 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.

data		equation	
number of particles	mass	$\text{moles} = \text{conc.} \times \text{vol(in dm}^3\text{)}$	$\text{moles} = \frac{pV}{RT}$
volume & conc. of solution	volume of gas	$\text{moles} = \frac{\text{number}}{6.02 \times 10^{23}}$	$\text{moles} = \frac{\text{mass}}{M_r}$
$\text{moles} = \frac{\text{mass}}{M_r}$	$\text{moles} = \frac{\text{number}}{6.02 \times 10^{23}}$	volume of gas	volume & conc. of solution
$\text{moles} = \frac{pV}{RT}$	$\text{moles} = \text{conc.} \times \text{vol(in dm}^3\text{)}$	mass	number of particles
equation		data	

gridlocks – can you unlock the grid?

Gridlock 2 – answers

data		equation	
mass	volume of gas	$\text{moles} = \frac{\text{number}}{6.02 \times 10^{23}}$	$\text{moles} = \text{conc.} \times \text{vol}(\text{in dm}^3)$
number of particles	volume & conc. of solution	$\text{moles} = \frac{\text{mass}}{M_r}$	$\text{moles} = \frac{pV}{RT}$
$\text{moles} = \frac{pV}{RT}$	$\text{moles} = \frac{\text{number}}{6.02 \times 10^{23}}$	volume & conc. of solution	mass
$\text{moles} = \text{conc.} \times \text{vol}(\text{in dm}^3)$	$\text{moles} = \frac{\text{mass}}{M_r}$	volume of gas	number of particles
equation		data	

Gridlock 3 – answers

data		equation	
volume of gas	volume & conc. of solution	$\text{moles} = \frac{\text{number}}{6.02 \times 10^{23}}$	$\text{moles} = \frac{\text{mass}}{M_r}$
number of particles	mass	$\text{moles} = \text{conc.} \times \text{vol}(\text{in dm}^3)$	$\text{moles} = \frac{pV}{RT}$
$\text{moles} = \text{conc.} \times \text{vol}(\text{in dm}^3)$	$\text{moles} = \frac{pV}{RT}$	mass	number of particles
$\text{moles} = \frac{\text{mass}}{M_r}$	$\text{moles} = \frac{\text{number}}{6.02 \times 10^{23}}$	volume of gas	volume & conc. of solution
equation		data	