

# MCAT Units & Constants

## To Get You Started



### Base Units in SI System

the kilogram (kg) for mass  
 the meter (m) for distance  
 the kelvin (K) for temperature  
 the mole (mol) for the amount of a substance  
 the ampere (A) for electric current  
 the second (s) for time  
 the candela (cd) for luminous intensity

### Constants & Formulas

1 Watt/ = 1J/S = $\text{kg m}^2 / \text{s}^3$	Hz = 1/ sec
1 mL = $1\text{cm}^3 = 1000\text{L} = 1\text{m}^3$	Speed = m/s
1 atm = 760 torr = 101.3 kPa	Acc= $\text{m} / \text{s}^2$
1 Pa = $1 \text{ N/m}^2 = 1 \text{ kg/ms}^2$	F = C/V
1 J = $1 \text{ N m} = 1 \text{ kg m}^2 / \text{s}^2$	1 C= 1 amp sec
Coulombs $6.24 \times 10^{18}$ protons	c = $\text{J} / \text{g}^\circ\text{C}$
( $1.036 \times 10^{-5}$ mol)	1V= $\text{kg m}^2 / \text{s}^3 \text{ A}$
1 hour = 3600 seconds	1A= $\text{kg m}^2 / \text{s}^3 \text{ A}^2$
	1 N= $1 \text{ kg m} / \text{s}^2$

## Approach:

1. Have I seen a problem like this before? Where?
2. How would I restate the problem in my own words?
3. What information here is most crucial and why?
4. Can I draw a picture to represent the information?
5. Is there anything else I can do to help me better understand problem?

Name	Symbol	constant	units
Speed of Light	c	$3.000 \times 10^8$	m/s
Gas Constant	R	8.314	$\frac{\text{J}}{\text{K} \cdot \text{mol}}$
			$\frac{\text{kg} \cdot \text{m}^2}{\text{s}^2 \cdot \text{K} \cdot \text{mol}}$
Avogadro's #	$N_A$ or L	$6.022 \times 10^{23}$	1/mol
Planck's constant	h	$6.626 \times 10^{-34}$	J*s
			$\frac{\text{kg} \cdot \text{m}^2}{\text{s}}$
Gravitational	G	$6.673 \times 10^{-11}$	$\frac{\text{Nm}^2}{\text{kg}^2}$

## Assess:

1. Do I have the correct units?
2. Does my answer make sense?
3. What was the hardest thing about this problem?
4. Was there a simpler way I could have solved this problem?