

PHYSICS REFERENCE PAGE

CONSTANTS AND CONVERSION FACTORS

Proton mass, $m_p = 1.67 \times 10^{-27}$ kg	Electron charge magnitude, $e =$
Neutron mass, $m_n = 1.67 \times 10^{-27}$ kg	Coulomb's law constant, $k =$
Electron mass, $m_e = 9.11 \times 10^{-31}$ kg	Universal gravitational constant, $G =$
Speed of light, $c = 3.00 \times 10^8$ m/s	Acceleration due to gravity at Earth's surface, $g =$

UNIT SYMBOLS	meter, m	kelvin, K	watt, W	degree Celsius, °C
	kilogram, kg	hertz, Hz	coulomb, C	
	second, s	newton, N	volt, V	
	ampere, A	joule, J	ohm, Ω	

PREFIXES

Factor	Prefix	Symbol
10^{12}	tera	
10^9	giga	
10^6	mega	
10^3	kilo	
10^{-2}	centi	
10^{-3}	milli	
10^{-6}	micro	
10^{-9}	nano	
10^{-12}	pico	

VALUES OF TRIGONOMETRIC FUNCTIONS FOR COMMON ANGLES

θ	0°	30°	37°	45°	53°	60°	90°
$\sin \theta$	0	$1/2$	$3/5$	$\sqrt{2}/2$	$4/5$	$\sqrt{3}/2$	1
$\cos \theta$	1	$\sqrt{3}/2$	$4/5$	$\sqrt{2}/2$	$3/5$	$1/2$	0
$\tan \theta$	0	$\sqrt{3}/3$	$3/4$	1	$4/3$	$\sqrt{3}$	∞

The following conventions are used in this exam.

- I. The frame of reference of any problem is assumed to be inertial unless otherwise stated.
- II. Assume air resistance is negligible unless otherwise stated.
- III. In all situations, positive work is defined as work done on a system.
- IV. The direction of current is conventional current: the direction in which positive charge would drift.
- V. Assume all batteries and meters are ideal unless otherwise stated.

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MECHANICS	ELECTRICITY
$v_x =$	$a =$
$x =$	$A =$
$v_x^2 =$	$d =$
$\bar{a} =$	$E =$
$ \vec{F}_f \leq$	$f =$
$a_c =$	$F =$
$\bar{p} =$	$I =$
$\Delta\bar{p} =$	$K =$
$K =$	$k =$
$\Delta E =$	$L =$
$P =$	$\ell =$
$\theta =$	$m =$
$\omega =$	$P =$
$x =$	$p =$
$\bar{\alpha} =$	$r =$
$\tau =$	$T =$
$L =$	$t =$
$\Delta L =$	$U =$
$K =$	$V =$
$ \vec{F}_s =$	$v =$
$U_s =$	$W =$
$\rho =$	$x =$
	$y =$
	$\alpha =$
	$\mu =$
	$\theta =$
	$\rho =$
	$\tau =$
	$\omega =$
	$\Delta U_g =$
	$T =$
	$T_s =$
	$T_p =$
	$ \vec{F}_g =$
	$\vec{g} =$
	$U_G =$
	$A =$
	$F =$
	$I =$
	$\ell =$
	$P =$
	$q =$
	$R =$
	$r =$
	$t =$
	$V =$
	$\rho =$
	$R_s =$
	$\frac{1}{R_p} =$
	WAVES
	$\lambda =$
	$f =$
	$v =$
	$\lambda =$
	GEOMETRY AND TRIGONOMETRY
	Rectangle
	$A =$
	$C =$
	$V =$
	Triangle
	$A =$
	$b =$
	$h =$
	$\ell =$
	$w =$
	$r =$
	Circle
	$A =$
	$C =$
	Rectangular solid
	$V =$
	Cylinder
	$V =$
	$S =$
	Sphere
	$V =$
	$S =$
	Right triangle
	$c^2 =$
	$\sin \theta =$
	$\cos \theta =$
	$\tan \theta =$
	