Gravitational field intensity	$\vec{g}_2 = -G\dfrac{m_1}{r_{12}^2}\vec{u}_{12}$ $\vec{g}_2 = -G\dfrac{m_1}{r_{12}^3}\vec{r}_{12}$
Newton's Law: **Force between two mass**	$\vec{F}_2 = -G\dfrac{m_1\,m_2}{r_{12}^2}\vec{u}_{12}$ $\vec{F}_2 = -G\dfrac{m_1\,m_2}{r_{12}^3}\vec{r}_{12}$ $\vec{F} = m\,\vec{g}$
Gravitational potential	$V_g = -G\dfrac{M}{r}$
Gravitational potential energy	$E_P = -G\dfrac{m_1\,m_2}{r}$, $E_P = m\,V_g$
Kinetic energy	$E_K = \dfrac{1}{2}m\,v^2$
Escape velocity	$v_E = \sqrt{\dfrac{2GM}{r}}$
Work to move a mass m from point *A* to point *B*.	$W = -\Delta E_P$ $W = -m\,(V_B - V_A)$
Orbits	$v^2 = \dfrac{G\,M}{r}$ $T = \dfrac{2\,\pi\,r}{v}$ Kepler's third law: $T^2 = \dfrac{4\,\pi^2}{G\,M}r^3$ $\dfrac{T_1^2}{T_2^2} = \dfrac{r_1^3}{r_2^3}$ Mechanical energy (total): $E_M = E_K + E_p = -G\dfrac{M\,m}{2r}$

Symbol	Magnitude	SI unit
g	Gravitational field intensity	$N/kg = m \cdot s^{-2}$
F	Force	N
$m,\ M$	Mass	kg
r	Distance, orbital radius	m
V_g	Gravitational potential	J/kg
$E_M,\ E_K,\ E_P$	Mechanic energy, kinetic energy, potential energy	J
W	Work	J
$v,\ v_E$	Orbital speed, escape velocity	m/s
T	Orbital period	s
G	Gravitational Constant $= 6.673 \times 10^{-11}$	$N \cdot m^2 \cdot kg^{-2}$
$\vec{u}_{12}$	Unitary vector	m/m