

Common Definitions for CVEN 221

Planet	Mass (kg)	Radius (m)	Distance from Sun (km)
Mercury	3.30×10^{23}	2,440,000	5.790×10^7
Venus	4.87×10^{24}	6,051,000	1.082×10^8
Earth	5.97×10^{24}	6,378,000	1.496×10^8
Mars	6.42×10^{23}	3,397,000	2.279×10^8
Jupiter	1.90×10^{27}	71,492,000	7.783×10^8
Saturn	5.69×10^{26}	60,268,000	1.426×10^9
Uranus	8.66×10^{25}	25,559,000	2.871×10^9
Neptune	1.03×10^{26}	24,764,000	4.497×10^9
Pluto	1.31×10^{22}	1,160,000	5.914×10^9

	Mass (kg)	Radius (m)	Distance from Earth (km)
Moon	7.35×10^{22}	1,738,000	384,403

Universal Constant of Gravitation

$$G = 3.439 \times 10^{-8} \text{ ft}^4 / (\text{lb s}^4)$$

$$G = 6.673 \times 10^{-11} \text{ m}^3 / (\text{kg s}^2)$$

Gravitational Constants on Earth:

$$g = 32.2 \text{ ft/s}^2$$

$$g = 9.81 \text{ m/s}^2$$

Warning: These values of g are constants - they are not accelerations!!

Common Unit Conversions for CVEN 221

Length				
	m	in	ft	mi
1 m =	1.0	39.37	3.281	6.214e-4
1 in =	2.540e-2	1.0	8.333e-2	1.578e-5
1 ft =	0.3048	12.00	1.0	1.894e-4
1 mi =	1609	6.336e4	5280	1.0
Mass				
	kg	slug		
1 kg =	1.0	6.852e-2		
1 slug =	14.59	1.0		
Force				
	N	lb	k	
1 N =	1.0	0.2248	2.248e-4	
1 lb =	4.448	1.0	1.0e-3	
1 k =	4448	1000	1.0	

Common Consistent Units for CVEN 221

	SI	US Customary
time	Second (s)	Second (s)
length	Meter (m)	feet (ft)
mass	Kilogram (kg)	slug
force	Newton (N)	Pounds (lb)