Table 1: Dimensionless numbers, similar to Incropera, 2nd ed., Table 6.2. Thermal diffusivity, $\alpha = k/(\rho \cdot c_p)$, Volumetric thermal expansion coefficient, β [1/K].

Name	Definition	Interpretation
Biot	$Bi \equiv \frac{hL}{k_s}$	Ratio of internal resistance of a solid to the boundary layer thermal resistance.
Eckman	$Ek = \frac{\nu}{L^2\omega}$	Ratio of viscous and coriolis forces.
Friction Coefficient	$C_f \equiv \frac{\tau_s}{\rho V^2/2}$	Dimensionless surface shear stress.
Fourier	$Fo \equiv \frac{\alpha t}{L^2}$	Ratio of the heat conduction rate to the rate of thermal energy storage in a solid. Dimensionless time.
Friction factor	$f \equiv \frac{\Delta p}{(L/D)(\rho u_m^2/2)}$	Dimensionless pressure drop for internal flow.
Froude	$Fr \equiv \frac{u}{\sqrt{gh}}$	Ratio of inertial to gravitational forces. Free surface flows.
Grashof	$Gr_L \equiv \frac{g\beta(T_s - T_\infty)L^3}{\nu^2}$	Ratio of buoyancy to viscous forces in the velocity boundary layer.
Mach	$M = u/c$	Ratio of flow velocity to sound speed.
Nusselt	$Nu_L \equiv \frac{hL}{k_f}$	Dimensionless temperature gradient at the surface.
Prandtl	$Pr \equiv \frac{c_p \mu}{k} = \frac{\nu}{\alpha}$	Ratio of momentum and thermal diffusivities.
Rayleigh	$Ra_d \equiv \frac{g\beta(T_H - T_C)d^3}{\alpha\nu}$	Equivalent to the product of Gr and Pr.
Reynolds	$Re_L \equiv \frac{\rho V L}{\mu} = \frac{VL}{\nu}$	Ratio of inertial to viscous forces.
Rossby	$Ro = \frac{u}{L\omega}$	Ratio of inertial and coriolis forces.
Weber	$We \equiv \frac{\rho V^2 L}{\sigma}$	Ratio of intertial to surface tension forces.

Universal Gas Constant	$\mathcal{R}$	8,314 J/(kg mol K) = 1.987 Btu/(lb mol °R)	1 kg = 2.2046 lbm
Gravity Proportionality	g_c	32.174 (lb_m/lb_f)(ft/s^2)	1 mi = 1.6093 km, 2.54 cm = 1 in
Avogadro's Number	$\mathcal{N}$	6.024×10^{23} molecules/mol	1 Nt = 0.2248 lbf
Planck's Constant	h	6.625×10^{-34} J·s	1 J = 0.73756 ft-lbf = 6.2415 MeV
Boltzmann's Constant	k	1.380×10^{-23} J/(K·molecule)	1 hp = 550 ft-lbf/s = 745.7 W
Stefan-Boltzman Constant	σ	5.67×10^{-8} W/(m^2 K^4)	
Vacuum speed of light	c_o	2.998×10^8 m/s	
gravity	g	9.807 m/s^2	
Sea level pressure	p	101,325 Pa	