

Table 1
Differential Length, Surface, and Volume Elements

Coordinate System	$d\mathbf{l}$	$d\mathbf{S}$	dV
Rectangular (x, y, z)	$dxu_x + dyu_y + dzu_z$	$dydzu_x$ $dzdxu_y$ $dx dyu_z$	$dx dy dz$
Cylindrical (r, ϕ, z)	$dr u_r + r d\phi u_\phi + dz u_z$	$r d\phi dz u_r$ $dr dz u_\phi$ $r dr d\phi u_z$	$r dr d\theta$
Spherical (R, θ, ϕ)	$dR u_R + R d\theta u_\theta + R \sin \theta d\phi u_\phi$	$R^2 \sin \theta d\theta d\phi u_R$ $R \sin \theta dR d\phi u_\theta$ $R dR d\theta u_\phi$	$R^2 \sin \theta dR d\theta d\phi$