

Dot Products of Unit Vectors

	Rectangular			Cylindrical			Spherical		
\bullet	a_x	a_y	a_z	a_ρ	a_ϕ	a_z	a_r	a_θ	a_ϕ
a_x	1	0	0	$\cos \phi$	$-\sin \phi$	0	$\sin \theta \cos \phi$	$\cos \theta \cos \phi$	$-\sin \phi$
a_y	0	1	0	$\sin \phi$	$\cos \phi$	0	$\sin \theta \sin \phi$	$\cos \theta \sin \phi$	$\cos \phi$
a_z	0	0	1	0	0	1	$\cos \theta$	$-\sin \theta$	0
a_ρ	$\cos \phi$	$\sin \phi$	0	1	0	0	$\sin \theta$	$\cos \theta$	0
a_ϕ	$-\sin \phi$	$\cos \phi$	0	0	1	0	0	0	1
a_z	0	0	1	0	0	1	$\cos \theta$	$-\sin \theta$	0
a_r	$\sin \theta \cos \phi$	$\sin \theta \sin \phi$	$\cos \theta$	$\sin \theta$	0	$\cos \theta$	1	0	0
a_θ	$\cos \theta \cos \phi$	$\cos \theta \sin \phi$	$-\sin \theta$	$\cos \theta$	0	$-\sin \theta$	0	1	0
a_ϕ	$-\sin \phi$	$\cos \phi$	0	0	1	0	0	0	1