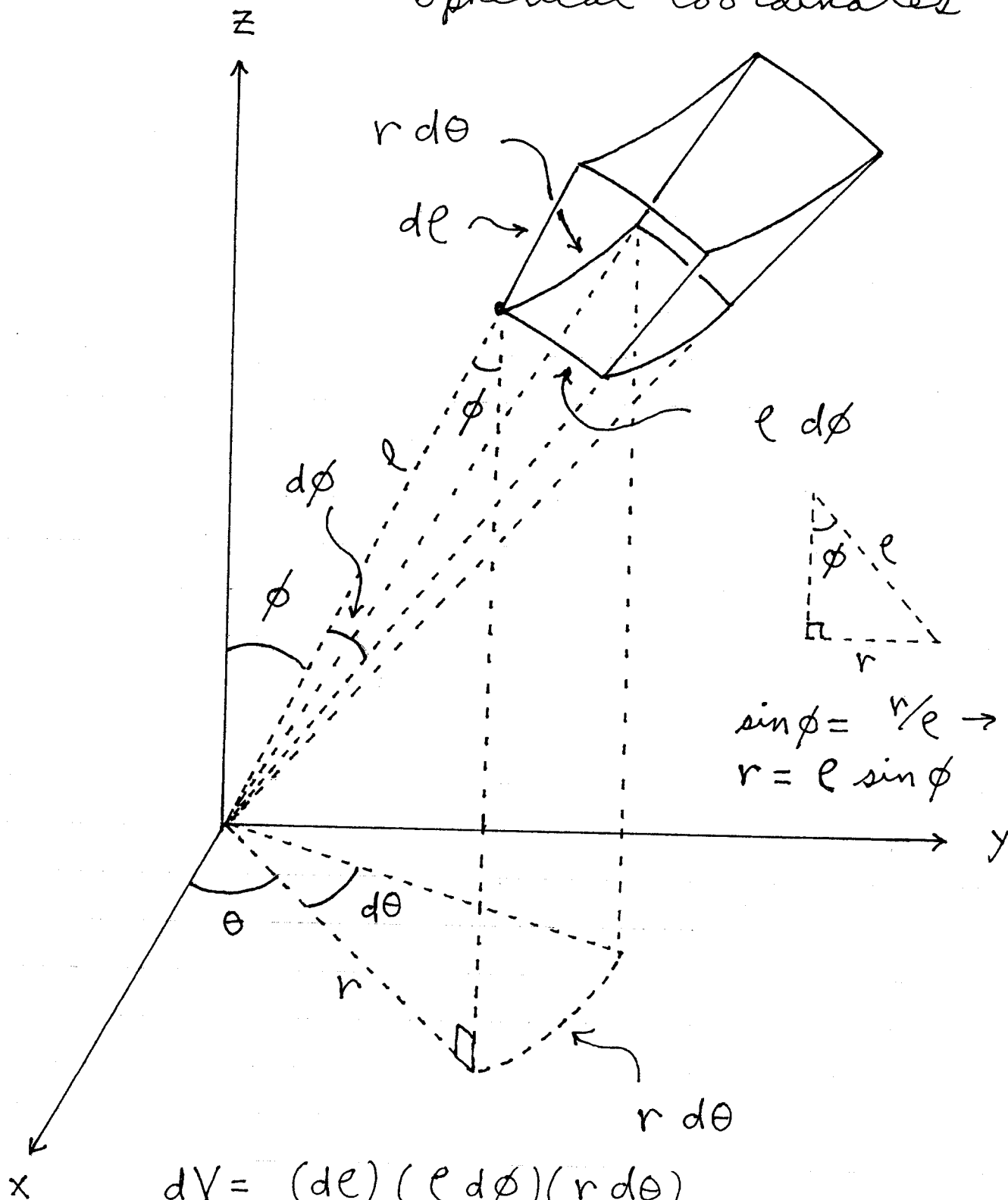


Math 21D
Kouba
The Differential of Volume for
Spherical Coordinates



$$\begin{aligned}
 dV &= (dl)(l d\phi)(r d\theta) \\
 &= (dl)(l d\phi)(l \sin \phi d\theta) \\
 &= l^2 \sin \phi dl d\phi d\theta
 \end{aligned}$$