

$$\begin{aligned}\int_0^{\pi/2} \int_0^{\cos(\theta)} e^{\sin(\theta)} dr d\theta &= \int_0^{\pi/2} [re^{\sin(\theta)}]_{r=0}^{r=\cos(\theta)} d\theta = \int_0^{\pi/2} (\cos(\theta)) e^{\sin(\theta)} d\theta \\ &= [e^{\sin(\theta)}]_0^{\pi/2} = e^{\sin(\pi/2)} - e^{\sin(0)} \\ &= e - 1\end{aligned}$$