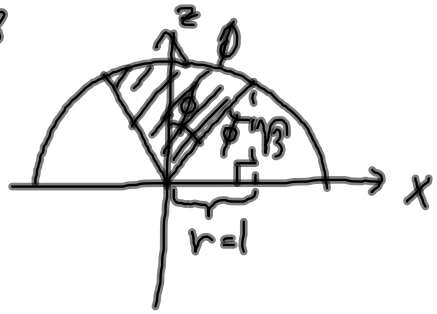
3.9.8



$x^2+y^2+z^2=4$

$x^2+y^2=4-z^2$

Skjæring mellom kule og kjegle:

$z^2=3(x^2+y^2)=3(4-z^2) \Rightarrow z^2=12-3z^2$

$4z^2=12 \Rightarrow z=\pm\sqrt{3}$. $z=\sqrt{3}$ er den vi vil ha.

Finner r (sylinderkoordinater):

$x^2+y^2+z^2=4 \Rightarrow r^2+3=4 \Rightarrow r^2=1 \Rightarrow r=1$

ϕ: $\tan\phi=\frac{1}{\sqrt{3}}=\frac{\sqrt{3}}{3} \Rightarrow \phi=\frac{\pi}{6}$

innenfor kjegle: $\phi \le \frac{\pi}{6}$ på kule: $\rho=2$

området: $\vec{r}(\theta,\phi)=(2\cos\theta\sin\phi, 2\sin\theta\sin\phi, 2\cos\phi)$

$0\le\theta\le 2\pi$ $0\le\rho\le\frac{\pi}{6}$