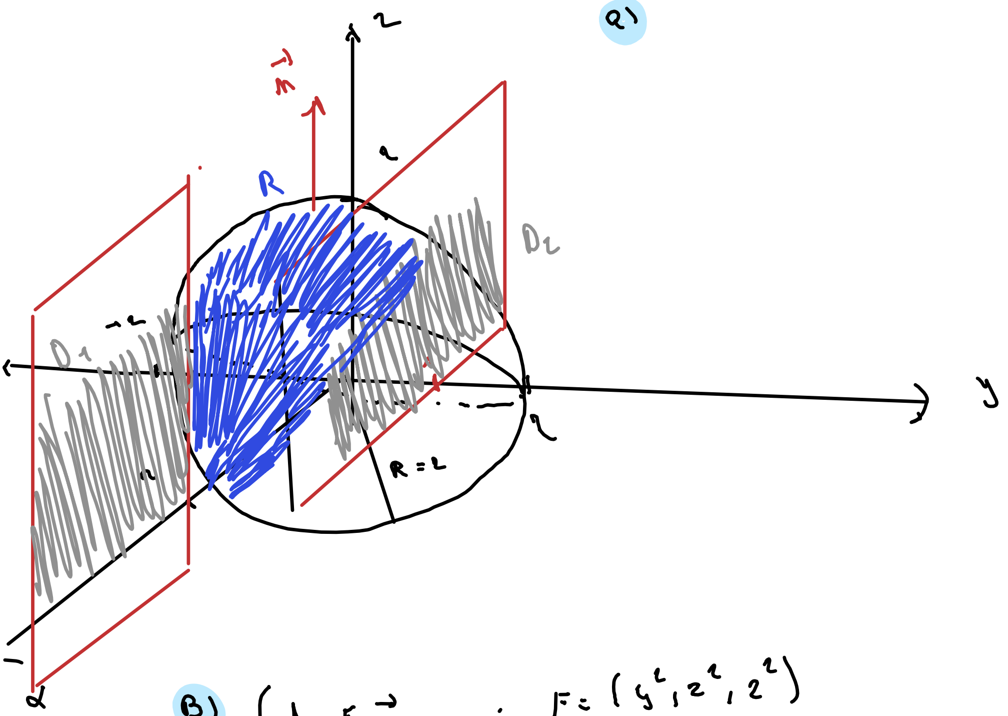

a)

B) $\oint d\sigma\, F\cdot\vec{m}$: $F = (y^2, z^2, z^2)$

we gebruiken sferische coordinaten: $(x, y, z) \to (2\sin\theta\cos\phi,\ 2\sin\theta\sin\phi,\ 2\cos\theta)$

$$\int_S F\, m\sigma = \int_R F\cdot m\, d\sigma + \int_{D_1} F m\cdot d\sigma + \int_{D_2} F m\cdot d\sigma$$

$m = \underset{r=4\wedge n}{\underline{r}} = (\sin\theta\cos\varphi, \sin\theta\sin\varphi, \cos\theta)$

$d\sigma = 4\sin\theta$

$F\cdot m =$ (see maple)

C) Gebruik Divergence:

$$\oint F\cdot\vec{m}\cdot d\sigma = \int_{dV} dV\, \vec\nabla\cdot F$$

$\vec\nabla\cdot F = 2z = 2\cdot\cos\theta\cdot 2$

$dV = r^2\sin\theta = 4\sin\theta$

nu de bandories ;

dus voor $y = 1 \Rightarrow \phi = \arccos\left(\frac{1}{2}\right)$

voor $y = -\sqrt{3} \Rightarrow \phi = \arccos\left(\frac{-\sqrt{3}}{2}\right)$