

## Ekstraoppgaver til kapittel 9.5

**Ekstraoppgave 9.5.1.** Plott flaten gitt ved likningen i sylinderkoordinater.

- a)  $r = 4 \cos \theta, \quad 0 \leq \theta \leq 2\pi, \quad 0 \leq z \leq 4.$
- b)  $r = 4 \cos(4\theta), \quad 0 \leq \theta \leq 2\pi, \quad 0 \leq z \leq 4.$
- c)  $r = z^2 \cos(4\theta), \quad 0 \leq \theta \leq 2\pi, \quad 0 \leq z \leq 4.$
- d)  $z = r \cos(3\theta) - r \cos(5\theta), \quad 0 \leq r \leq 8, \quad 0 \leq \theta \leq 2\pi.$
- e)  $z = r^2 \cos(4\theta), \quad 0 \leq r \leq 8, \quad 0 \leq \theta \leq 2\pi.$
- f)  $\theta = r \cdot z, \quad 0 \leq r \leq 8, \quad 0 \leq z \leq 8.$

**Ekstraoppgave 9.5.2.** Plott flaten gitt ved likningen i kulekoordinater.

- a)  $\rho = 4 \cdot \sin \varphi, \quad 0 \leq \varphi \leq 2, \quad 0 \leq \theta \leq 2\pi.$
- b)  $\rho = 4 \cdot \sin(4\varphi), \quad 0 \leq \varphi \leq \pi, \quad 0 \leq \theta \leq \pi/2.$
- c)  $\varphi = \rho \cdot \theta/2, \quad 0 \leq \rho \leq 1, \quad 0 \leq \theta \leq 4\pi.$
- d)  $\theta = 2\rho\varphi, \quad 0 \leq \rho \leq 4, \quad 0 \leq \varphi \leq \pi.$
- e)  $\rho = \sin^2 \varphi, \quad 0 \leq \varphi \leq \pi, \quad 0 \leq \theta \leq 2\pi.$
- f)  $\theta = \pi\rho \cdot \sin \varphi, \quad 0 \leq \rho \leq 2, \quad 0 \leq \varphi \leq \pi.$