17.

$$\begin{aligned}\int_{-1}^{1}\int_{-1}^{1}|x+y|\,dx\,dy &= 4\int_{0}^{1}\int_{0}^{1}(x+y)\,dx\,dy\\ &= 4\int_{0}^{1}\left(\frac{x^2}{2}+yx\right)\Bigg|_{0}^{1}dy\\ &= 4\left(\frac{1}{2}y+\frac{1}{2}y^2\right)\Bigg|_{0}^{1} = 4\end{aligned}$$

44.

$$\iiint\limits_{V}\frac{dx\,dy\,dz}{\sqrt{x^2+y^2+(z-2)^2}} = \iiint\limits_{V}\frac{dx\,dy\,dz}{\sqrt{x^2+y^2+z^2}}$$

In cylindrical coordinates, the region is

$$E = \{(r,\theta,z) \mid 0\le\theta\le 2\pi,\ 0\le r\le 1,\ 0\le\theta\le 2\pi,\ -3\le z\le -1\}$$

Therefore we have

$$\begin{aligned}\iiint\limits_{V}\frac{r\,dz\,dr\,d\theta}{\sqrt{r^2+z^2}} &= \int_{0}^{2\pi}d\theta\int_{0}^{1}\int_{-3}^{-1}\frac{r}{\sqrt{r^2+z^2}}\,dz\,dr\\ &= 2\pi\int_{0}^{1}\int_{-3}^{-1}\frac{r}{\sqrt{r^2+z^2}}\,dz\,dr\end{aligned}$$

34.

a) $x = 4y - y^2,\ x+y=6$

The 2 lines intersect at $y=2,\ y=3$.

$$\begin{aligned}\int_{2}^{3}\left|(4y-y^2)-(y-6)\right|dy &= \int_{2}^{3}-y^2+3y+6\,dy\\ &= \left(-\frac{y^3}{3}+\frac{3y^2}{2}+6y\right)\Bigg|_{2}^{3}\end{aligned}$$

35.

a) $z = 1-x^2-y^2,\ y=x,\ y=\sqrt{3}x, z=0$

$$\begin{aligned}\int_{0}^{1}\int_{x}^{\sqrt{3}x}\left(1-x^2-y^2\right)dy\,dx &= \int_{0}^{1}\left(y-x^2y-\frac{1}{3}y^3\right)\Bigg|_{x}^{\sqrt{3}x}dx\\ &= (\sqrt{3}-1)\int_{0}^{1}x-\frac{4}{3}x^3\,dx\\ &= (\sqrt{3}-1)\left(\frac{x^2}{2}-\frac{x^4}{3}\right)\Bigg|_{0}^{1}\\ &= \frac{\sqrt{3}-1}{6}\end{aligned}$$

b) $x^2+y^2=a,\ x^2+z^2=a$