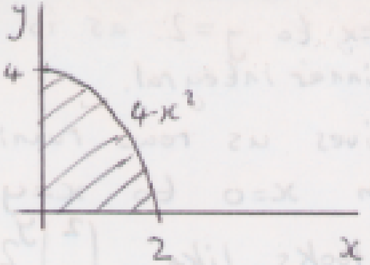


Changing the direction of the rows means that they run in the x-direction. Each row starts at $x=0$, but to find its other end, we must invert $y=4-x^2$ to get $x=\sqrt{4-y}$.
So the inner integral, to work out the volume of each row, is $\int_0^{\sqrt{4-y}} \frac{xe^{2y}}{4-y}\,dx$.

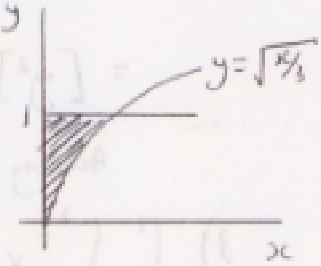
Including the outer integral, which sums over the rows, gives

$$\int_0^4 \int_0^{\sqrt{4-y}} \frac{xe^{2y}}{4-y}\,dx\,dy.$$

$$\int_0^4 \int_0^{\sqrt{4-y}} \frac{xe^{2y}}{4-y}\,dx\,dy = \int_0^4 \left[\frac{\frac{1}{2}x^2e^{2y}}{4-y}\right]_0^{\sqrt{4-y}} dy = \int_0^4 \tfrac{1}{2}e^{2y}\,dy$$

$$= \left[\tfrac{1}{4}e^{2y}\right]_0^4 = \tfrac{1}{4}(e^8-1)$$

5) $$\int_0^3 \int_{\sqrt{x/3}}^1 e^{y^3}\,dy\,dx$$



Again, here the rows run in the y-direction from the curve $y=\sqrt{x/3}$ up to the line $y=1$.

Changing the direction, so that they run in the x-direction, means that they must run from $x=0$ to $x=3y^2$ ($3y^2$ is what we get when we rearrange $y=\sqrt{\frac{x}{3}}$). This gives,

$$\int_0^1 \int_0^{3y^2} e^{y^3}\,dx\,dy.$$

$$\int_0^1 \int_0^{3y^2} e^{y^3}\,dx\,dy = \int_0^1 \left[xe^{y^3}\right]_0^{3y^2} dy = \int_0^1 3y^2e^{y^3}\,dy$$

$$= \left[e^{y^3}\right]_0^1 = e-1.$$