1. $\int_{-\frac{\pi}{2}}^{\frac{pi}{2}}(\int_0^2(\int_0^{r^3} rdz)dr)d\theta$

   - $\int_0^{r^3} rdz$
     $rz\big|_0^{r^3} =$
     r^4
   - $\int_0^2 r^4 dr =$
     $\frac{r^5}{5}\Big|_0^2 =$
     $\frac{32}{5}$
   - $\int_{-\frac{\pi}{2}}^{\frac{pi}{2}} \frac{32}{5} d\theta =$
     $\frac{32}{5}\theta\big|_{-\frac{\pi}{2}}^{\frac{pi}{2}} =$
     $\frac{32}{5}\pi$

2. $\int_0^2(\int_0^{2\pi}(\int_0^r rdz)d\theta)dr$

   - $\int_0^r rdz =$
     r^2
   - $\int_0^{2\pi} r^2 d\theta =$
     $2\pi r^2$
   - $\int_0^2 2\pi r^2 dr =$
     $2\pi \frac{r^3}{3}\Big|_0^2 =$
     $2\pi\frac{8}{3}$