

① If a tank of fluid has density HW36

$$dm/dV = 5 - 2z \quad (\text{so, } dm = (5 - 2z)dV)$$

and its bounds are given by $0 \leq x \leq 10$,
 $0 \leq y \leq 20$, and $3x - 80 \leq z \leq 0$, then
what is the total mass $\iiint_{\text{tank}} dm$?

② Find the average value of $\rho^2 = x^2 + y^2 + z^2$
in the region $B = \{(x, y, z) \mid 1 \leq x, y, z \text{ \& } x + y + z \leq 12\}$.

③ Find $\iiint_E ze^x dV$ where

$$E = \{(x, y, z) \mid x^2 \leq 1 \leq y \leq 3z \leq 6\}$$