

① Find the volume of region HW31

$$K = \{(x, y, z) \mid 0 \leq x \leq 1 \text{ \& } 0 \leq y \leq 2 \text{ \& } x^2 \leq z \leq 1 + y^2\}.$$

② Compute $\int_0^2 \int_0^3 (x-y)^5 dx dy$ & $\int_0^2 \int_0^3 (x-y)^5 dy dx$.

③ Compute $\int_{-1}^2 \int_{-1}^3 xy^2 dx dy$ & $\int_{-1}^2 \int_{-1}^3 xy^2 dy dx$.

④ Compute $\int_0^1 \int_2^3 \ln(x^3 - y^3) dx dy$, approximately.

You'll need a calculator or computer for ④.