

(1) [2] Compute $h'(x)$ where $h(x) = \int_0^{x^3} \ln(1+r^2) dr$.

(2) [3] Determine $\int x^3 e^{x^4} dx$.

(3) [5] Evaluate $\int_0^{\pi/2} \sin(x) \sin(\cos(x)) dx$.

(4) [5] Determine $\int t^5 \ln t dt$.