

(1) [5] Evaluate $\int_0^1 x(\sqrt[3]{x} + \sqrt[4]{x}) dx$.

(2) [5] Find the derivative of $h(x) = \int_2^{1/x} \arctan(t) dt$.

(3) [5] Evaluate $\int_1^4 \frac{e^{\sqrt{x}}}{\sqrt{x}} dx$.