

(1) [5] Determine $F''(2)$ if

$$F(x) = \int_1^x f(t) dt \quad \text{and} \quad f(t) = \int_1^{t^2} \frac{\sqrt{u^3 - 1}}{u} du$$

(2) [5] Determine $\int \frac{a + bx^4}{5ax + bx^5} dx$.

(3) [5] Evaluate $\int_1^9 \frac{e^{\sqrt{x}}}{\sqrt{x}} dx$.