Practice: u substitution

Exercise 1: Compute the following integrals:

a) $\int_0^1 x(x^2 - 1)^3 \, dx$

b) $\int_1^e \frac{lnx}{x} \, dx$

c) $\int_0^\pi \cos^3 x . \sin x \, dx$

d) $\int_{\frac{\pi}{4}}^{\frac{\pi}{2}} xe^{x^2} \, dx$
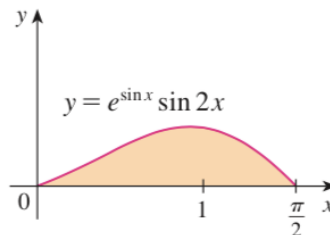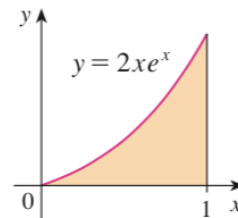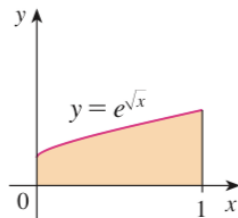
Exercise 2: Compute the following integrals:

a) $\int_0^4 \sqrt{2x + 1} \, dx$

b) $\int_0^{\frac{\pi}{4}} tanx \, dx$

c) $\int_0^1 \sqrt{1 + x^2} . x^5 \, dx$

d) $\int_0^{ln3} e^{5x} \, dx$

Exercise 3: Which of the following areas are equal? Why?

Exercise 4: Find $\int_0^1 \sqrt{1 - x^2} dx$ by using u substitution method. Compare your answer with the solution of exercise 6 (Lab on Tuesday 09, 2021).