PROBLEM SET 5: STRATEGY FOR INTEGRATION

Note: Most of the problems were taken from the textbook $[1]$.

Problem 1. *Solve the following integrals:*

a) $\int \frac{x}{x^4+2}\, dx$

b) $\int \frac{\cos(1/x)}{x^3}\, dx$

c) $\int e^{x+e^x}\, dx$

d) $\int \frac{\ln x}{x\sqrt{1+(\ln x)^2}}\, dx$

e) $\int \frac{x^2}{\sqrt{1-x^2}}\, dx$

f) $\int_{-\pi/2}^{\pi/2} \frac{x}{1+\cos^2 x}\, dx$

g) $\int x\sqrt{2-\sqrt{1-x^2}}\, dx$

h) $\int \frac{1+\sin x}{1+\cos x}\, dx$

i) $\int \frac{\sin 2x}{1+\cos^4 x}\, dx$

j) $\int \sqrt{1-\sin x}\, dx$

k) $\int \frac{\sin x \cos x}{\sin^4 x+\cos^4 x}\, dx$

REFERENCES

[1] J. Stewart: *Single Variable Calculus* 8th Edition, Cengage Learning, Boston 2015.