

This is not a binding contract, only a guideline for study.

Questions are given in entirety or outlined.

If applicable, the section number and block of exercises similar to it are given in parenthesis.

1. Find the area between $f(x) = 2x^2 + 3x$ using the Right Reimann Integral Technique on the interval $[1,4]$
2. For $f(x) = x^2 - 2$, find the actual area between the curve and the x axis on the interval $[0,4]$, and evaluate $\int_0^4 f(x) dx$. (Similar to 5.2, 21-25)
3. What is the domain of $f(t) = \int_t^{12} \frac{1}{1-x^2} dx$? And find the derivative of f (Similar to 5.3, 7-12)

Find the following indefinite integrals:

4. $\int \frac{1}{x^2} + \sqrt{x} + \frac{1}{\sqrt{x}} dx$
5. $\int x(x^2 + 3x - 6) dx$
6. $\int \frac{(1-\sqrt{x})^5}{\sqrt{x}} dx$
7. $\int e^x \cos(e^x) dx$

Find the following definite integrals:

8. $\int_0^4 x^2(2x+5) dx$
9. $\int_1^2 \frac{x+2}{\sqrt{x^2+4x}} dx$
10. $\int_0^\pi \sin x \cos(\cos x) dx$
11. $\int_2^3 \frac{1}{x(\ln x)^2} dx$