

These are the problem statements for the suggested problems for 5.3-5.5. In general, you will get the problems from the textbook, but I will post the next couple sets of questions until everyone has a textbook.

5.3: 3, 27

5.4: 7, 15, 19, 45

5.5: 9, 11, 13, 17, 19, 21, 29, 33, 39

5.3, # 3: Estimate (using right endpoints) the given integral $\int_a^b f(x)dx$ by using a Riemann sum

$$S_n = \sum_{k=1}^n f(a + k\Delta x)\Delta x \text{ for } n = 4.$$

$$\int_1^3 x^2 dx$$

5.3, #27: Evaluate $\int_{-1}^2 f(x)dx$ given that

$$\int_{-1}^1 f(x)dx = 3; \int_2^3 f(x)dx = -2; \int_1^3 f(x)dx = 5$$

5.4 #7: Evaluate the definite integral.

$$\int_1^2 \frac{c}{x^3} dx$$

5.4 #15: Evaluate the definite integral.

$$\int_{\ln 2}^{\ln 5} 5e^x dx$$

5.4 #19: Evaluate the definite integral.

$$\int_1^2 \frac{x^3 + 1}{x^2} dx$$

5.4 #45: The formula is taken from a table of integrals. Use differentiation to verify that the formula is correct.

$$\int \cos^2 au du = \frac{u}{2} + \frac{\sin 2au}{4a} + C$$

5.5 #9: Use substitution to evaluate the indefinite integral.

$$\int (2x + 3)^4$$

5.5 #11: Use substitution to evaluate the indefinite integral.

$$\int [\tan(x^2 + 5x + 3)(2x + 5)] dx$$

5.5 #13: Use substitution to evaluate the indefinite integral.

$$\int (x^2 - \cos 3x) dx$$

5.5 #17: Use substitution to evaluate the indefinite integral.

$$\int \sqrt{t}(t^{3/2} + 5)^3 dt$$

5.5 #19: Use substitution to evaluate the indefinite integral.

$$\int x \sin(3 + x^2) dx$$

5.5 #21: Use substitution to evaluate the indefinite integral.

$$\int \frac{x dx}{2x^2 + 3}$$

5.5 #29: Use substitution to evaluate the indefinite integral.

$$\int \frac{\ln x}{x} dx$$

5.5 #33: Use substitution to evaluate the indefinite integral.

$$\int \frac{e^t dt}{e^t + 1}$$

5.5 #39: Evaluate the definite integral.

$$\int_1^2 \frac{e^{1/x}}{x^2} dx$$