MATH 152 Assignment 3, Spring 2024.

Webassign Exercises

6.5 Exercises 1, 9.

7.1 Exercises 3, 5, 15, 19.

7.2 Exercises 1, 10, 45, 51.

7.3 Exercises 1, 2, 3.

Written Exercises

Please upload your solution to each question to the corresponding crowdmark box.
Just put your name and student ID number on your answer to question 1.

1 (Section 6.5) Calculate the average of $f(x) = (1+x)^3$ on $[0, 2]$.

2 (Section 6.5) A car is travelling at $v(t) = at(2-t)$ kmph. If the average speed on $0 \leq t \leq 2$ is 100 kmph, what must a be?

3 (Section 7.1) Evaluate $\int e^{\sqrt{x}} dx$.
Make a substitution first then use integration by parts.

4 (Section 7.1) Calculate $\int (1+t^2)e^{-t} dt$.

5 (Section 7.2) Two functions $f(x)$ and $g(x)$ are said to be orthogonal on $[a, b]$ if $\int_a^b f(x)g(x)dx = 0$. Show that $\sin 3x$ and $\cos 2x$ are orthogonal on $[-\pi, \pi]$.

6 (Section 7.2) Find the volume obtained by rotating $y = \sin x$ for $0 \leq x \leq \pi$ about the x axis.

7 Section 7.3 exercise 10. Use a trig substitution.

8 Section 7.3 exercise 14. Use a trig substitution.

9 Section 7.3 exercise 18. Use a trig substitution. I get $\ln(1+\sqrt{2})$.

For written exercises 7 and 8 use the integration tables in the textbook – see REFERENCE pages 6 and 7 – to check your answers.