



Center for Academic Resources in Engineering (CARE) Peer Exam Review Session

Math 231 — Calculus II

Midterm 1 Worksheet

The problems in this review are designed to help prepare you for your upcoming exam. Questions pertain to material covered in the course and are intended to reflect the topics likely to appear in the exam. Keep in mind that this worksheet was created by CARE tutors, and while it is thorough, it is not comprehensive. In addition to exam review sessions, CARE also hosts regularly scheduled tutoring hours.

Tutors are available to answer questions, review problems, and help you feel prepared for your exam during these times:

Session 1: September 14th, 2-4pm Kewal and Maya

Can't make it to a session? Here's our schedule by course:

<https://care.grainger.illinois.edu/tutoring/schedule-by-subject>

Solutions will be available on our website after the last review session that we host.

Step-by-step login for exam review session:

1. Log into Queue @ Illinois: <https://queue.illinois.edu/q/queue/844>
2. Click “New Question”
3. Add your NetID and Name
4. Press “Add to Queue”

Please be sure to follow the above steps to add yourself to the Queue.

Good luck with your exam!

1. Evaluate the following Integral:

$$\int \sin(3x)e^x dx$$

2. Evaluate the following Integral:

$$\int \frac{4}{x^2 + 5x - 14} dx$$

3. Evaluate the following Integral:

$$\int t^7 \sin(2t^4) dt$$

4. Evaluate the following Integral:

$$\int_{1/3}^1 \ln(3x) dx$$

5. Evaluate the following Integral:

$$\int_0^{\pi/4} \tan^5(x) \sec^4(x) dx$$

6. Evaluate the following Integral:

$$\int \frac{1}{\sqrt{25 + x^2}} dx$$

7. Evaluate the following Integral:

$$\int_0^4 \frac{1}{(x^2 + 16)^{\frac{3}{2}}} dx$$

8. Evaluate the following Integral:

$$\int \frac{2x^2 - x + 4}{x^3 + 4x} dx$$

9. Evaluate the following Integral:

$$\int_0^{16} \frac{\sqrt{x}}{x + 1} dx$$

10. Evaluate the following Integral:

$$\int \arctan\left(\frac{2}{x}\right) dx$$