

**Exam 2 Review**  
**Calculus II**

**March, 2026**  
**Prof. Nollet**

General Advice: look over all of your home work and quizzes, try to overcome problems you might have had. Practice similar problems with book closed.

- 8.1 Integration by Parts. Expect 1-2 integration by parts problems, possibly one where you fold the integral back on itself.
- 8.2 Trigonometric Integrals. There will be at least two of these, one stand alone problem, and another that arises from a Trig substitution.
- 8.3 Trigonometric Substitutions. Make sure you are prepared to use the proper Trig substitution to deal with square roots of the form

$$\sqrt{a^2 - x^2}, \quad \sqrt{a^2 + x^2}, \quad \sqrt{x^2 - a^2}$$

and use an appropriate triangle to convert back to the variable  $x$ . These integrals take time, so you can expect at most one of these on the exam.

- 8.4 Partial Fractions. Make sure you know how to write the *form* of a partial fraction once the denominator is factored, this is an essential part of the method. These take time, so there will be at most one partial fraction problem, there could be a shorter question on the form.
- 4.5 L'Hospitals' Rule. Not sure I will put one of these on the exam, but certainly possible.
- 8.7 Improper Integrals. At least one of these, probably short or combined with one of the integration techniques. You should know the story of the integrals  $\int_1^{\infty} \frac{dx}{x^p}$  just in case I put on a short one of these.