

Review Sheet for the Third Midterm Exam
Brendan Owens, Math 1552, Section 1

- The third exam is in class on Thursday April 10th. Wednesday's class will be a review session in which I will answer any questions that you have.
- No books, notes or calculators allowed.
- Partial credit will be given. It may also be deducted for things like incorrect use of (or failure to use) the equals sign, forgetting to write dx , or not writing down all work involved in a solution.
- At least 20% of the exam will be taken from the suggested problems on www.math.lsu.edu/~owens/1552.

Here is a brief summary of the material covered since the previous test. For each topic, look over examples from textbook, class notes and webwork.

Binomial series, applications of Taylor series and polynomials (Section 10.7)

Know how to use the binomial series. Also how to evaluate functions and integrals using Taylor series and polynomials.

Parametric curves (Sections 11.1, 11.2)

Plotting basic parametric curves. Know how to parametrize some basic curves such as circles and ellipses. Arclength and speed. Derivative, tangent lines.

Polar coordinates and polar graphs (Sections 11.3, 11.4)

Converting between polar and Cartesian coordinates. Two-step procedure for sketching polar graphs. Derivatives, tangents and arclength for polar curves (rewrite as a parametric curve using

$$\begin{aligned}x &= r \cos \theta \\y &= r \sin \theta).\end{aligned}$$

Area inside polar graphs (use formula $A = \frac{1}{2} \int_a^b r^2 d\theta$).

Vectors in \mathbf{R}^2 and \mathbf{R}^3 (Sections 12.1, 12.2, 12.3, 12.4)

Addition, scalar multiplication and their geometric interpretations. Length of a vector. Dot product, angle between vectors, projection formulas. Cross product and its geometric meaning. Areas of triangles and parallelograms. Equations of lines in 3 dimensions.