

## Math2210 Midterm 1 Review Problems

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Chapter 10 Review (pg 553)  
Sample Test Problems #25-32 all

Chapter 11 Review (pg 613-615)  
Concepts Test Problems #1-9 all, 12-16 all, 20-24 all, 26, 27, 28, 40, 51, 55, 57  
Sample Test Problems #1-19 all, 21, 25-27 all, 30-44 all

Chapter 12 Review (pg 672-673)  
Concepts Test Problems #1, 2, 6  
Sample Test Problems #1-10 all

The exam covers sections 10.4, 11.1-11.6, 11.8, 11.9 and 12.1-12.2. You will NOT need a calculator for this exam, nor will one be allowed.

You can bring a 8.5x11 inch sheet of paper notes (on both sides, if you want) to use as a reference.

### Topics:

- Parametric Equations of Curves
- Vectors
  - arithmetic of vectors
  - Dot product
  - projection of one vector onto another vector
  - cross product
- Planes in 3-d
  - distance from point to plane
  - equations of planes
- Vector-valued functions (scalar input; vector output)
- Lines and tangent lines in 3-d
- Quadric Surfaces
- Cylindrical/Spherical Coordinates and conversions
- Functions of several variables (vector input, aka many variables are inputs; scalar output)
  - domain
  - level curves
- Partial derivatives of functions of several variables
- Slope of tangent line to a curve of intersection between two surfaces in 3-d