Outline of Spring Test 2 Topics

Algebra 2 Honors

February 9, 2011

The following are the major topics we have covered that may be on the second test. I have included a few sample Exeter problems for each topic, but there are typically others that I have not listed. Note that some problems use techniques to solve them that might not be obvious, and some problems also use a combination of more than one technique. The test will cover up to problem 60:10. Calculators will not be allowed.

1. Ellipses. Know the definition of an ellipse and how to derive the standard form of an ellipse from its definition. Know how to convert between the standard and parametric forms, and how to plot an ellipse given either; know the key information about an ellipse (major and minor axes and focal points) and how to determine them from the standard and parametric forms, and how to derive the standard and parametric forms given the key information. (45:7-8, 46:7, 47:3-5, 47:10-11, 48:4, 49:3, 50:4, 56:1)

2. Know the basic laws of exponents, as on quiz 1. (45:1, 45:9, 48:9, 49:1, 56:6, 60:1) Know by rote powers of 2 up to 2^{10}, powers of 3 up to 3^5, and powers of 5 up to 5^4.

3. Exponential functions. Understand basic properties of exponential functions (both growth and decay) including asymptotes. Be able to sketch them without a calculator. Understand applications to various problems. Be able to convert between annual and monthly rates (for example). (45:3, 46:4-5, 47:9, 48:3, 49:8-9, 49:4, 51:7, 52:4-5, 52:9, 53:7, 54:7, 55:6, 56:3, 56:8)

4. Logarithms. Know the relationship of logarithms to exponents, and be able to convert between them. Be able to calculate logarithms of special values. Know the laws of logarithms and how to derive them. Be able to derive the base change formula for logs. (48:5-8, 49:2, 49:7, 50:6-7, 52:6-7, 53:2-3, 53:5-6, 54:3-5, 55:5, 56:6, 58:8, 57:5, 58:3, 58:8, 59:3, 60:10)

5. Not on this test but on the next test: Sequences. (57:4, 58:5, 58:11, 59:7)