

**The University of the State of New York
THE STATE EDUCATION DEPARTMENT
Albany, New York 12234**

**Specifications for the Regents Examination in Algebra 2/Trigonometry
(First Administration—June 2010)**

The questions on the Regents Examination in Algebra 2/Trigonometry will assess both the content and the process strands of New York State Mathematics Standard 3. Each question will be aligned to one content performance indicator but will also be aligned to one or more process performance indicators, as appropriate for the concepts embodied in the task. As a result of the alignment to both content and process strands, the examination will assess students' conceptual understanding, procedural fluency, and problem-solving abilities rather than assessing knowledge of isolated skills and facts.

There will be 39 questions on the Regents Examination in Algebra 2/Trigonometry. The table below shows the percentage of total credits that will be aligned with each content strand.

| Content Strand | % of Total Credits |
|--------------------------------|---------------------------|
| 1) Number Sense and Operations | 6—10% |
| 2) Algebra | 70—75% |
| 4) Measurement | 2—5% |
| 5) Probability and Statistics | 13—17% |

Question Types

The Regents Examination in Algebra 2/Trigonometry will include the following types and numbers of questions:

| Question Type | Number of Questions |
|-------------------------------------|----------------------------|
| Multiple choice (2 credits each) | 27 |
| 2-credit open ended | 8 |
| 4-credit open ended | 3 |
| 6-credit open ended | 1 |
| Total credits | 88 |

Calculators

Schools must make a graphing calculator available for the exclusive use of each student while that student takes the Regents Examination in Algebra 2/Trigonometry.

Algebra 2/Trigonometry Reference Sheet

Area of a Triangle

$$K = \frac{1}{2}ab \sin C$$

Functions of the Sum of Two Angles

$$\sin(A + B) = \sin A \cos B + \cos A \sin B$$

$$\cos(A + B) = \cos A \cos B - \sin A \sin B$$

$$\tan(A + B) = \frac{\tan A + \tan B}{1 - \tan A \tan B}$$

Functions of the Difference of Two Angles

$$\sin(A - B) = \sin A \cos B - \cos A \sin B$$

$$\cos(A - B) = \cos A \cos B + \sin A \sin B$$

$$\tan(A - B) = \frac{\tan A - \tan B}{1 + \tan A \tan B}$$

Law of Sines

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

Sum of a Finite Arithmetic Series

$$S_n = \frac{n(a_1 + a_n)}{2}$$

Binomial Theorem

$$(a + b)^n = {}_n C_0 a^n b^0 + {}_n C_1 a^{n-1} b^1 + {}_n C_2 a^{n-2} b^2 + \dots + {}_n C_n a^0 b^n$$

$$(a + b)^n = \sum_{r=0}^n {}_n C_r a^{n-r} b^r$$

Law of Cosines

$$a^2 = b^2 + c^2 - 2bc \cos A$$

Functions of the Double Angle

$$\sin 2A = 2 \sin A \cos A$$

$$\cos 2A = \cos^2 A - \sin^2 A$$

$$\cos 2A = 2 \cos^2 A - 1$$

$$\cos 2A = 1 - 2 \sin^2 A$$

$$\tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$$

Functions of the Half Angle

$$\sin \frac{1}{2}A = \pm \sqrt{\frac{1 - \cos A}{2}}$$

$$\cos \frac{1}{2}A = \pm \sqrt{\frac{1 + \cos A}{2}}$$

$$\tan \frac{1}{2}A = \pm \sqrt{\frac{1 - \cos A}{1 + \cos A}}$$

Sum of a Finite Geometric Series

$$S_n = \frac{a_1(1 - r^n)}{1 - r}$$

