The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

ALGEBRA 2/TRIGONOMETRY

Wednesday, August 18, 2010—8:30 to 11:30 a.m., only

Student Name: _____

School Name: _____

   Print your name and the name of your school on the lines above. Then turn to the last page of this booklet, which is the answer sheet for Part I. Fold the last page along the perforations and, slowly and carefully, tear off the answer sheet. Then fill in the heading of your answer sheet.

   This examination has four parts, with a total of 39 questions. You must answer all questions in this examination. Write your answers to the Part I multiple-choice questions on the separate answer sheet. Write your answers to the questions in Parts II, III, and IV directly in this booklet. All work should be written in pen, except graphs and drawings, which should be done in pencil. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc.

   The formulas that you may need to answer some questions in this examination are found at the end of the examination. This sheet is perforated so you may remove it from this booklet.

    Scrap paper is not permitted for any part of this examination, but you may use the blank spaces in this booklet as scrap paper. A perforated sheet of scrap graph paper is provided at the end of this booklet for any question for which graphing may be helpful but is not required. You may remove this sheet from this booklet. Any work done on this sheet of scrap graph paper will *not* be scored.

   When you have completed the examination, you must sign the statement printed at the end of the answer sheet, indicating that you had no unlawful knowledge of the questions or answers prior to the examination and that you have neither given nor received assistance in answering any of the questions during the examination. Your answer sheet cannot be accepted if you fail to sign this declaration.

Notice…

A graphing calculator and a straightedge (ruler) must be available for you to use while taking this examination.

   The use of any communications device is strictly prohibited when taking this examination. If you use any communications device, no matter how briefly, your examination will be invalidated and no score will be calculated for you.

**DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN.**

Part I

Answer all 27 questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed. For each question, write on the separate answer sheet the numeral preceding the word or expression that best completes the statement or answers the question. [54]

1 The product of $(3 + \sqrt{5})$ and $(3 - \sqrt{5})$ is

(1) $4 - 6\sqrt{5}$ (3) 14

(2) $14 - 6\sqrt{5}$ (4) 4

2 What is the radian measure of an angle whose measure is $-420°$?

(1) $-\dfrac{7\pi}{3}$ (3) $\dfrac{7\pi}{6}$

(2) $-\dfrac{7\pi}{6}$ (4) $\dfrac{7\pi}{3}$

3 What are the domain and the range of the function shown in the graph below?
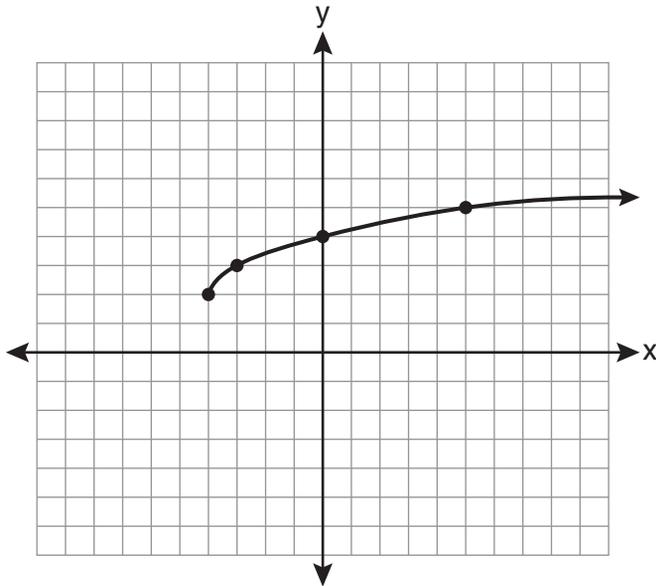
(1) $\{x \mid x > -4\}; \{y \mid y > 2\}$ (3) $\{x \mid x > 2\}; \{y \mid y > -4\}$

(2) $\{x \mid x \geq -4\}; \{y \mid y \geq 2\}$ (4) $\{x \mid x \geq 2\}; \{y \mid y \geq -4\}$

4 The expression $2i^2 + 3i^3$ is equivalent to

(1) $-2 - 3i$ (3) $-2 + 3i$

(2) $2 - 3i$ (4) $2 + 3i$

5 In which graph is θ coterminal with an angle of $-70°$?


(1)

(3)

(2)

(4)
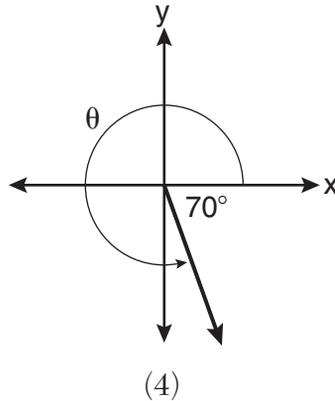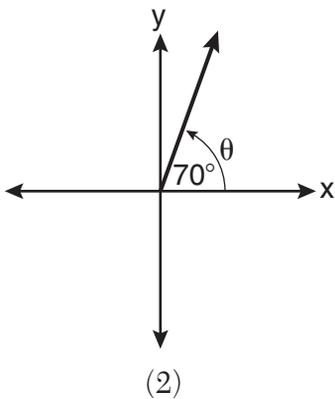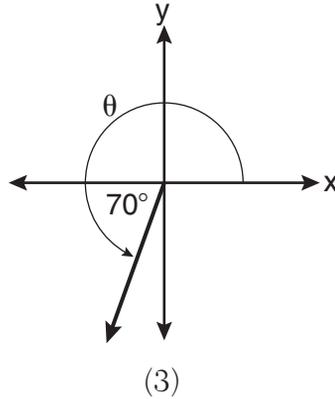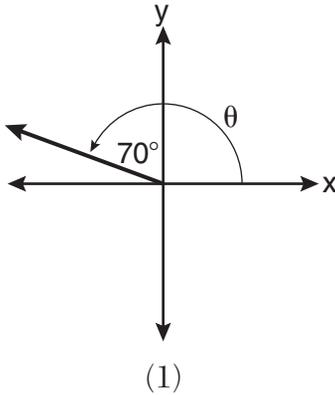
6 In $\triangle ABC$, m$\angle A = 74$, $a = 59.2$, and $c = 60.3$. What are the two possible values for m$\angle C$, to the *nearest tenth*?

(1) 73.7 and 106.3   (3) 78.3 and 101.7

(2) 73.7 and 163.7   (4) 78.3 and 168.3

7 What is the principal value of $\cos^{-1}\left(-\dfrac{\sqrt{3}}{2}\right)$?

(1) $-30°$ (3) $150°$

(2) $60°$ (4) $240°$

8 What is the value of x in the equation $9^{3x+1} = 27^{x+2}$?

(1) 1 (3) $\dfrac{1}{2}$

(2) $\dfrac{1}{3}$ (4) $\dfrac{4}{3}$

9 The roots of the equation $2x^2 + 7x - 3 = 0$ are

(1) $-\dfrac{1}{2}$ and -3 (3) $\dfrac{-7 \pm \sqrt{73}}{4}$

(2) $\dfrac{1}{2}$ and 3 (4) $\dfrac{7 \pm \sqrt{73}}{4}$

10 Which ratio represents csc A in the diagram below?

(1) $\dfrac{25}{24}$ (3) $\dfrac{24}{7}$

(2) $\dfrac{25}{7}$ (4) $\dfrac{7}{24}$

11 When simplified, the expression $\left(\dfrac{w^{-5}}{w^{-9}}\right)^{\frac{1}{2}}$ is equivalent to

(1) w^{-7} (3) w^7

(2) w^2 (4) w^{14}

12 The principal would like to assemble a committee of 8 students from the 15-member student council. How many different committees can be chosen?

(1) 120   (3) 32,432,400

(2) 6,435   (4) 259,459,200

13 An amateur bowler calculated his bowling average for the season. If the data are normally distributed, about how many of his 50 games were within one standard deviation of the mean?

(1) 14   (3) 34

(2) 17   (4) 48

14 What is a formula for the nth term of sequence B shown below?

$$B = 10, 12, 14, 16, \ldots$$

(1) $b_n = 8 + 2n$ (3) $b_n = 10(2)^n$

(2) $b_n = 10 + 2n$ (4) $b_n = 10(2)^{n-1}$

15 Which values of x are in the solution set of the following system of equations?

$$y = 3x - 6$$
$$y = x^2 - x - 6$$

(1) 0, −4   (3) 6, −2

(2) 0, 4   (4) −6, 2

16 The roots of the equation $9x^2 + 3x - 4 = 0$ are

(1) imaginary

(2) real, rational, and equal

(3) real, rational, and unequal

(4) real, irrational, and unequal

17 In $\triangle ABC$, $a = 3$, $b = 5$, and $c = 7$. What is m$\angle C$?

(1) 22   (3) 60

(2) 38   (4) 120

18 When $x^{-1} - 1$ is divided by $x - 1$, the quotient is

(1) −1   (3) $\dfrac{1}{x^2}$

(2) $-\dfrac{1}{x}$ (4) $\dfrac{1}{(x-1)^2}$

19 The fraction $\dfrac{3}{\sqrt{3a^2b}}$ is equivalent to

(1) $\dfrac{1}{a\sqrt{b}}$

(3) $\dfrac{\sqrt{3b}}{ab}$

(2) $\dfrac{\sqrt{b}}{ab}$

(4) $\dfrac{\sqrt{3}}{a}$

20 Which graph represents a one-to-one function?

(1)

(3)

(2)

(4)

21 The sides of a parallelogram measure 10 cm and 18 cm. One angle of the parallelogram measures 46 degrees. What is the area of the parallelogram, to the *nearest square centimeter*?

(1) 65   (3) 129

(2) 125   (4) 162

22 The minimum point on the graph of the equation $y = f(x)$ is $(-1, -3)$. What is the minimum point on the graph of the equation $y = f(x) + 5$?

(1) $(-1, 2)$ (3) $(4, -3)$

(2) $(-1, -8)$ (4) $(-6, -3)$

23 The graph of $y = x^3 - 4x^2 + x + 6$ is shown below.


What is the product of the roots of the equation $x^3 - 4x^2 + x + 6 = 0$?

(1) -36 (3) 6

(2) -6 (4) 4
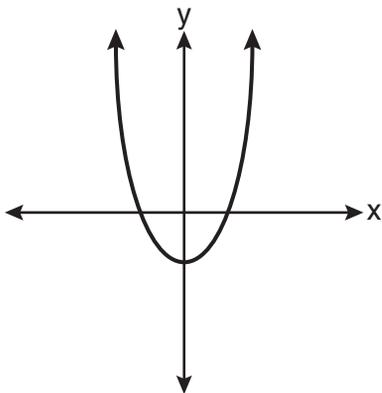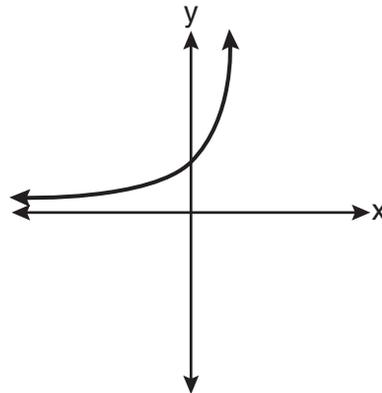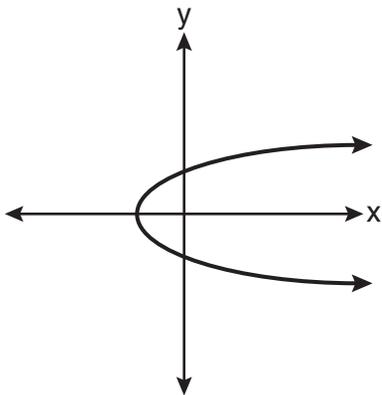
24 What is the conjugate of $-2 + 3i$?

(1) $-3 + 2i$ 　　　　　　　(3) $2 - 3i$

(2) $-2 - 3i$ 　　　　　　　(4) $3 + 2i$

25 What is the common ratio of the geometric sequence whose first term is 27 and fourth term is 64?

(1) $\frac{3}{4}$ 　　　　　　　(3) $\frac{4}{3}$

(2) $\frac{64}{81}$ 　　　　　　　(4) $\frac{37}{3}$

26 Which graph represents one complete cycle of the equation $y = \sin 3\pi x$?

(1)

(3)

(2)

(4)
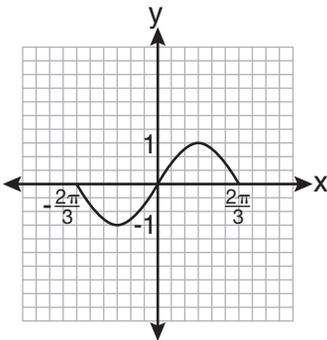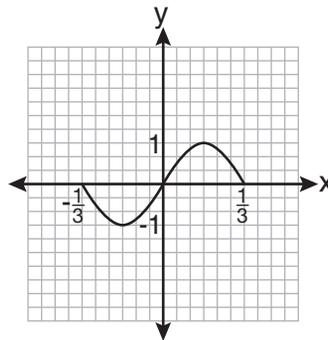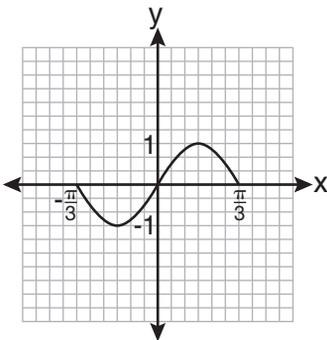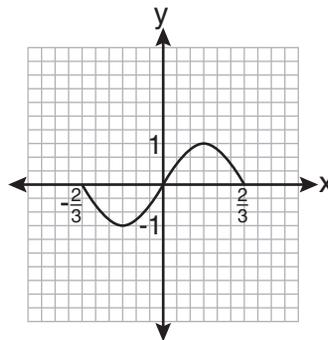
27 Which two functions are inverse functions of each other?

(1) $f(x) = \sin x$ and $g(x) = \cos x$

(2) $f(x) = 3 + 8x$ and $g(x) = 3 - 8x$

(3) $f(x) = e^x$ and $g(x) = \ln x$

(4) $f(x) = 2x - 4$ and $g(x) = -\frac{1}{2}x + 4$

Answer all 8 questions in this part. Each correct answer will receive 2 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [16]

28 Factor completely: $10ax^2 - 23ax - 5a$

29 Express the sum $7 + 14 + 21 + 28 + \ldots + 105$ using sigma notation.

30 Howard collected fish eggs from a pond behind his house so he could determine whether sunlight had an effect on how many of the eggs hatched. After he collected the eggs, he divided them into two tanks. He put both tanks outside near the pond, and he covered one of the tanks with a box to block out all sunlight.

State whether Howard's investigation was an example of a controlled experiment, an observation, or a survey. Justify your response.

31 The table below shows the number of new stores in a coffee shop chain that opened during the years 1986 through 1994.

Year	Number of New Stores
1986	14
1987	27
1988	48
1989	80
1990	110
1991	153
1992	261
1993	403
1994	681

Using $x = 1$ to represent the year 1986 and y to represent the number of new stores, write the exponential regression equation for these data. Round all values to the *nearest thousandth*.

32 Solve the equation $2 \tan C - 3 = 3 \tan C - 4$ algebraically for all values of C in the interval $0° \leq C < 360°$.

33 A circle shown in the diagram below has a center of $(-5,3)$ and passes through point $(-1,7)$.
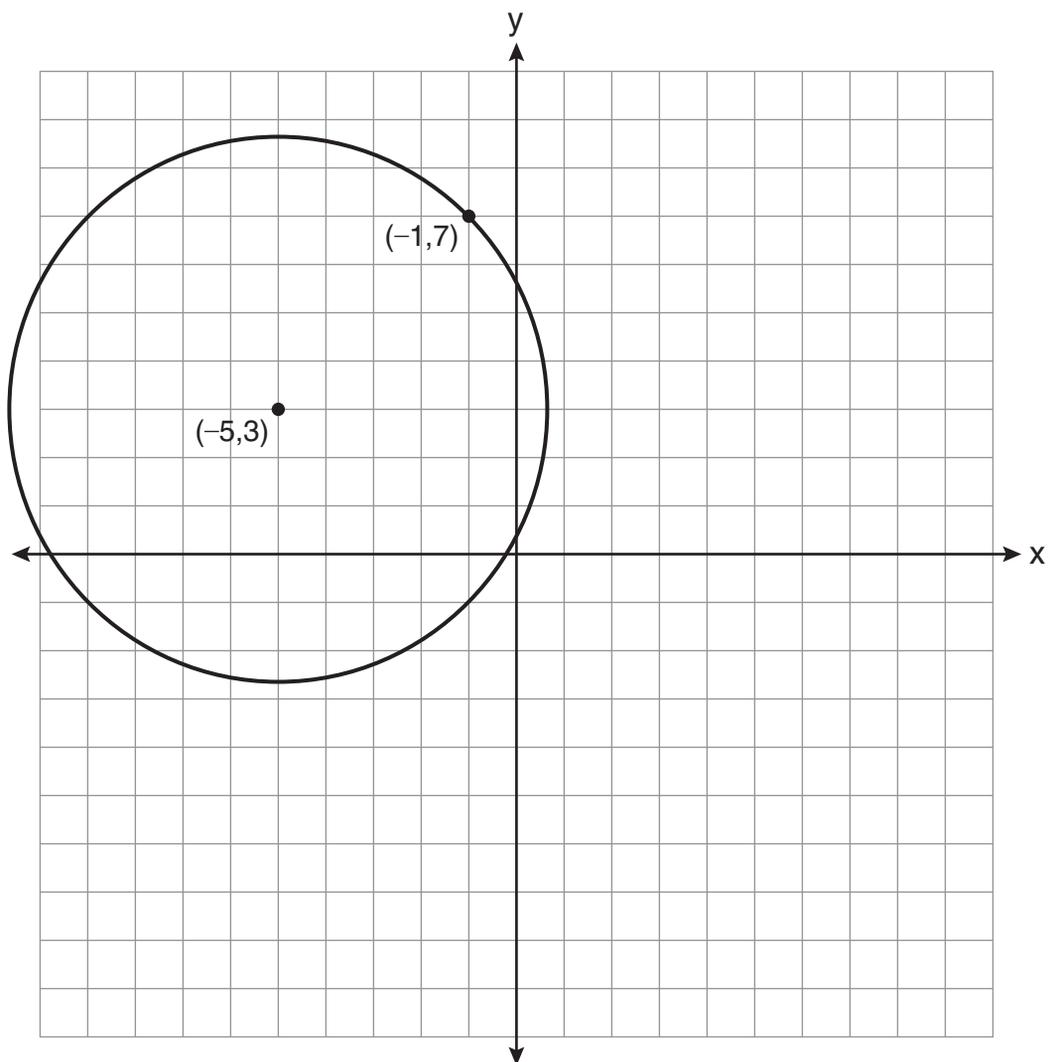
Write an equation that represents the circle.

34 Express $\left(\frac{2}{3}x - 1\right)^2$ as a trinomial.

35 Find the total number of different twelve-letter arrangements that can be formed using the letters in the word *PENNSYLVANIA*.

Part III

Answer all 3 questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [12]

36 Solve algebraically for x: $\dfrac{1}{x+3} - \dfrac{2}{3-x} = \dfrac{4}{x^2-9}$

37 If $\tan A = \frac{2}{3}$ and $\sin B = \frac{5}{\sqrt{41}}$ and angles A and B are in Quadrant I, find the value of $\tan (A + B)$.

38 A study shows that 35% of the fish caught in a local lake had high levels of mercury. Suppose that 10 fish were caught from this lake. Find, to the *nearest tenth of a percent*, the probability that *at least* 8 of the 10 fish caught did *not* contain high levels of mercury.

Answer the question in this part. A correct answer will receive 6 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. A correct numerical answer with no work shown will receive only 1 credit. The answer should be written in pen. [6]

39 Solve algebraically for x: $\log_{x+3} \frac{x^3 + x - 2}{x} = 2$

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

$$(a + b)^n = {}_nC_0 a^n b^0 + {}_nC_1 a^{n-1} b^1 + {}_nC_2 a^{n-2} b^2 + \ldots + {}_nC_n a^0 b^n$$

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

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

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

Normal Curve
Standard Deviation
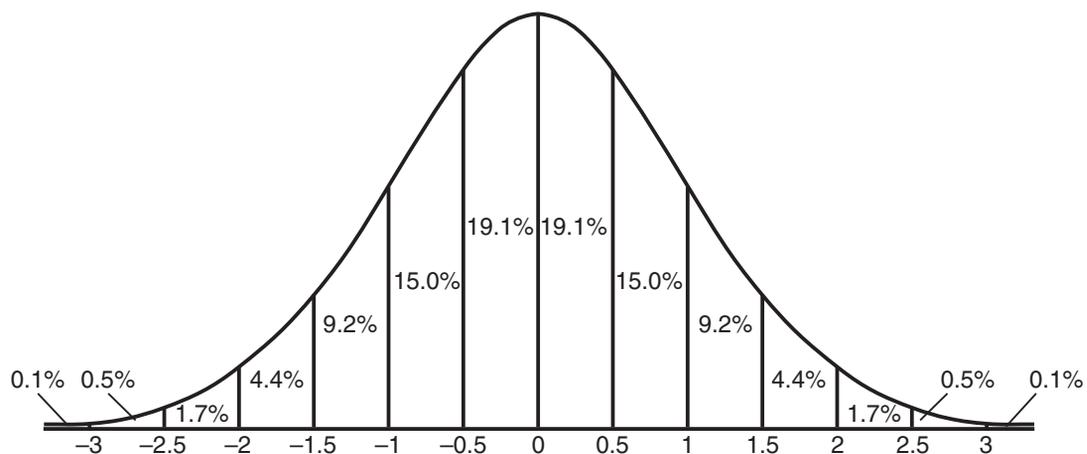
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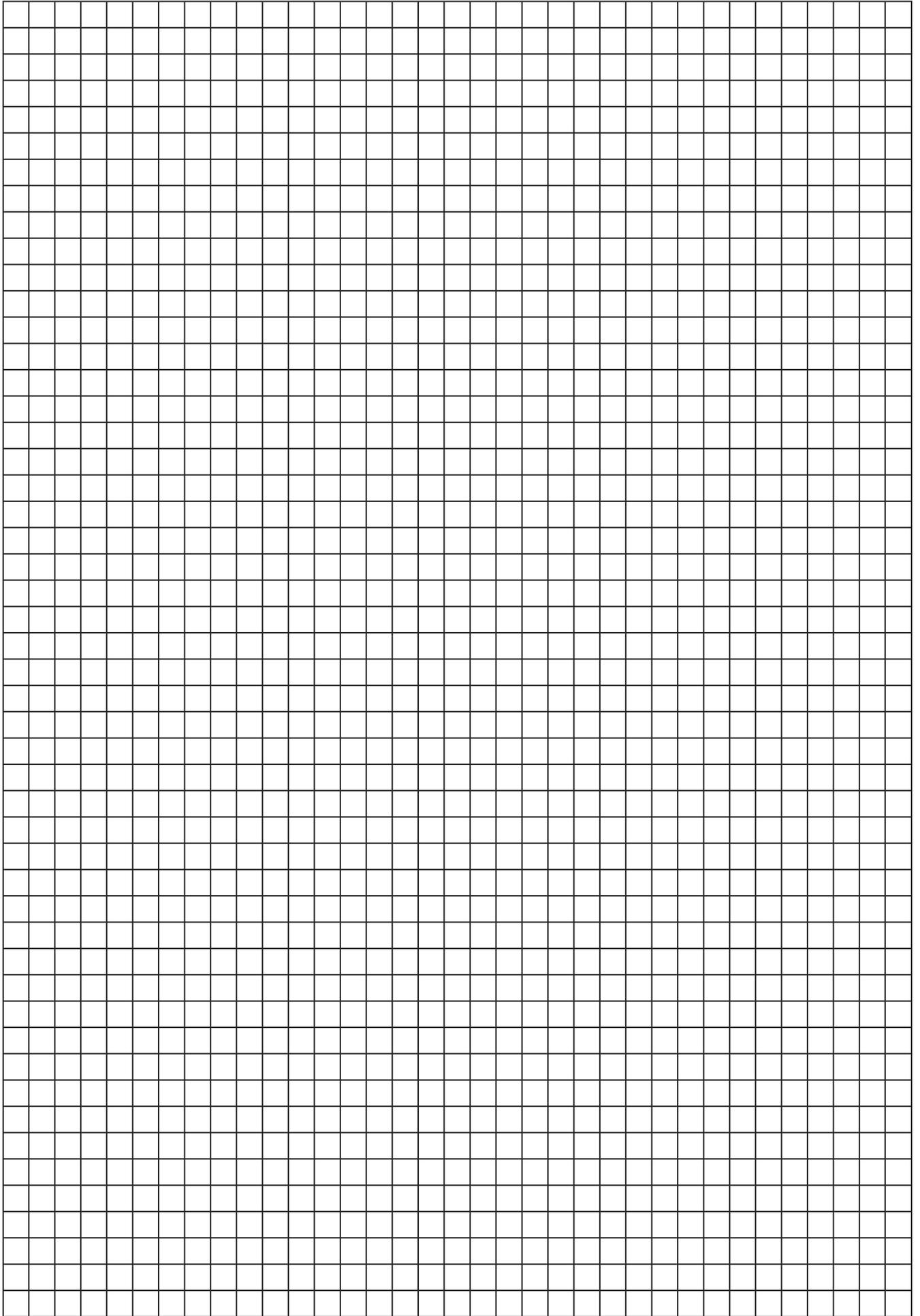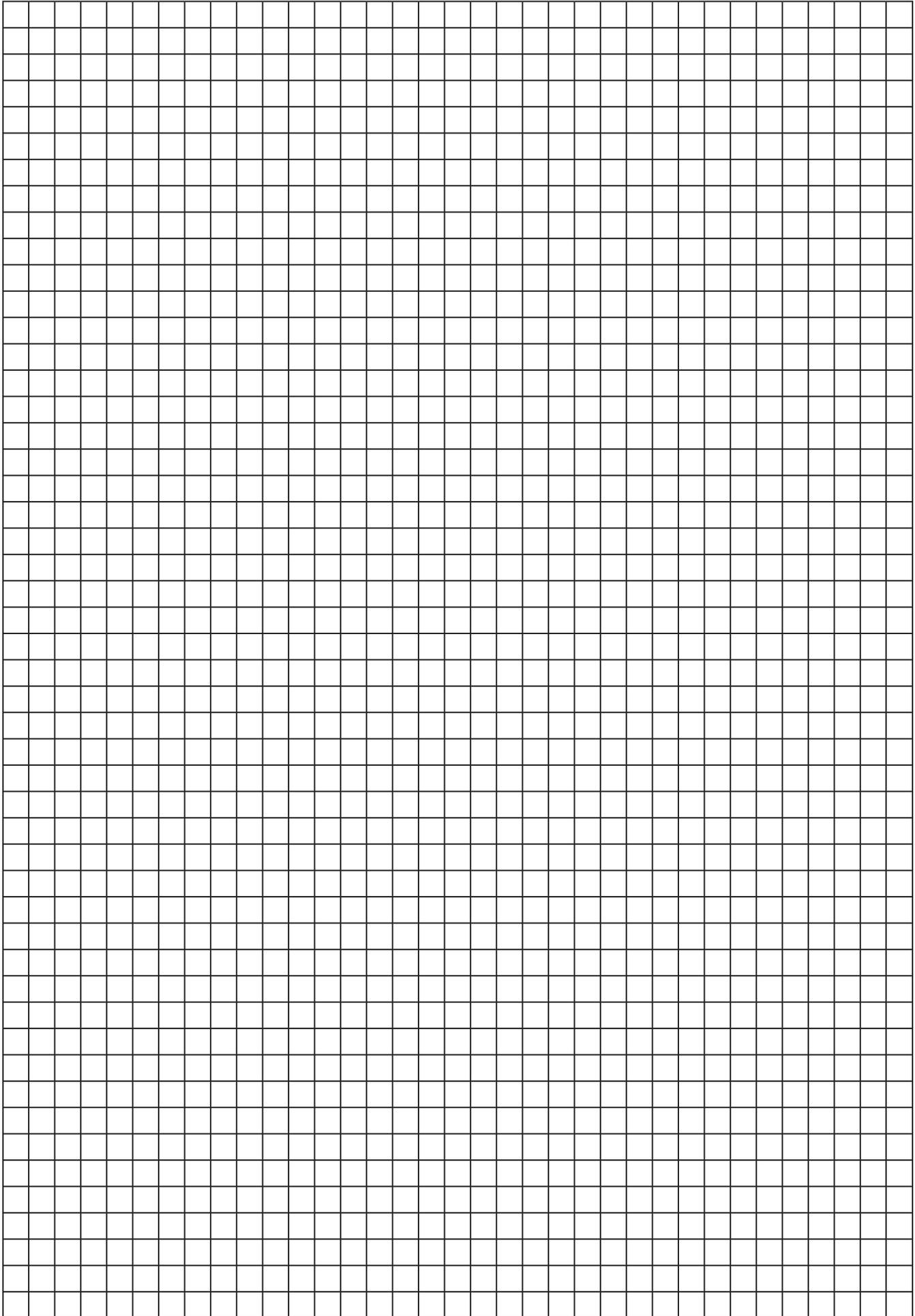
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ALGEBRA 2/TRIGONOMETRY

Wednesday, August 18, 2010—8:30 to 11:30 a.m., only

————

ANSWER SHEET

Student .... Sex: ❏ Male ❏ Female Grade ......

Teacher .... School ....

Your answers to Part I should be recorded on this answer sheet.

Part I

Answer all 27 questions in this part.

1 .... 8 .... 15 .... 22 ....

2 .... 9 .... 16 .... 23 ....

3 .... 10 .... 17 .... 24 ....

4 .... 11 .... 18 .... 25 ....

5 .... 12 .... 19 .... 26 ....

6 .... 13 .... 20 .... 27 ....

7 .... 14 .... 21 ....

Your answers for Parts II, III, and IV should be written in the test booklet.

The declaration below must be signed when you have completed the examination.

I do hereby affirm, at the close of this examination, that I had no unlawful knowledge of the questions or answers prior to the examination and that I have neither given nor received assistance in answering any of the questions during the examination.

_____

Signature

ALGEBRA 2/TRIGONOMETRY

ALGEBRA 2/TRIGONOMETRY			
Question	**Maximum Credit**	**Credits Earned**	**Rater's/Scorer's Initials**
Part I 1–27	54		
Part II 28	2		
29	2		
30	2		
31	2		
32	2		
33	2		
34	2		
35	2		
Part III 36	4		
37	4		
38	4		
Part IV 39	6		
Maximum Total	88		

Total Raw Score   **Checked by**   **Scale Score** (from conversion chart)

Rater's/Scorer's Name
(minimum of three)

FOR TEACHERS ONLY

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

ALGEBRA 2/TRIGONOMETRY

Wednesday, August 18, 2010 — 8:30 to 11:30 a.m., only

SCORING KEY AND RATING GUIDE

Mechanics of Rating

The following procedures are to be followed for scoring student answer papers for the Regents Examination in Algebra 2/Trigonometry. More detailed information about scoring is provided in the publication *Information Booklet for Scoring the Regents Examinations in Mathematics*.

Use only *red* ink or *red* pencil in rating Regents papers. Do *not* attempt to correct the student's work by making insertions or changes of any kind. Use check marks to indicate student errors.

Unless otherwise specified, mathematically correct variations in the answers will be allowed. Units need not be given when the wording of the questions allows such omissions.

Each student's answer paper is to be scored by a minimum of three mathematics teachers. On the back of the student's detachable answer sheet, raters must enter their initials in the boxes next to the questions they have scored and also write their name in the box under the heading "Rater's/Scorer's Name."

Raters should record the student's scores for all questions and the total raw score on the student's detachable answer sheet. Then the student's total raw score should be converted to a scale score by using the conversion chart that will be posted on the Department's web site http://www.emsc.nysed.gov/osa/ on Wednesday, August 18, 2010. The student's scale score should be entered in the box provided on the student's detachable answer sheet. The scale score is the student's final examination score.

Part I

Allow a total of 54 credits, 2 credits for each of the following. Allow credit if the student has written the correct answer instead of the numeral 1, 2, 3, or 4.

(1) 4	(8) 4	(15) 2	(22) 1
(2) 1	(9) 3	(16) 4	(23) 2
(3) 2	(10) 2	(17) 4	(24) 2
(4) 1	(11) 2	(18) 2	(25) 3
(5) 4	(12) 2	(19) 3	(26) 3
(6) 3	(13) 3	(20) 3	(27) 3
(7) 3	(14) 1	(21) 3	

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. Check this web site http://www.emsc.nysed.gov/osa/ and select the link "Examination Scoring Information" for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and several times throughout the Regents examination period.

General Rules for Applying Mathematics Rubrics

I. General Principles for Rating

The rubrics for the constructed-response questions on the Regents Examination in Algebra 2/Trigonometry are designed to provide a systematic, consistent method for awarding credit. The rubrics are not to be considered all-inclusive; it is impossible to anticipate all the different methods that students might use to solve a given problem. Each response must be rated carefully using the teacher's professional judgment and knowledge of mathematics; all calculations must be checked. The specific rubrics for each question must be applied consistently to all responses. In cases that are not specifically addressed in the rubrics, raters must follow the general rating guidelines in the publication *Information Booklet for Scoring the Regents Examinations in Mathematics*, use their own professional judgment, confer with other mathematics teachers, and/or contact the consultants at the State Education Department for guidance. During each Regents examination administration period, rating questions may be referred directly to the Education Department. The contact numbers are sent to all schools before each administration period.

II. Full-Credit Responses

A full-credit response provides a complete and correct answer to all parts of the question. Sufficient work is shown to enable the rater to determine how the student arrived at the correct answer.

When the rubric for the full-credit response includes one or more examples of an acceptable method for solving the question (usually introduced by the phrase "such as"), it does not mean that there are no additional acceptable methods of arriving at the correct answer. Unless otherwise specified, mathematically correct alternative solutions should be awarded credit. The only exceptions are those questions that specify the type of solution that must be used; e.g., an algebraic solution or a graphic solution. A correct solution using a method other than the one specified is awarded half the credit of a correct solution using the specified method.

III. Appropriate Work

Full-Credit Responses: The directions in the examination booklet for all the constructed-response questions state: "Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc." The student has the responsibility of providing the correct answer *and* showing how that answer was obtained. The student must "construct" the response; the teacher should not have to search through a group of seemingly random calculations scribbled on the student paper to ascertain what method the student may have used.

Responses With Errors: Rubrics that state "Appropriate work is shown, but …" are intended to be used with solutions that show an essentially complete response to the question but contain certain types of errors, whether computational, rounding, graphing, or conceptual. If the response is incomplete; i.e., an equation is written but not solved or an equation is solved but not all of the parts of the question are answered, appropriate work has *not* been shown. Other rubrics address incomplete responses.

IV. Multiple Errors

Computational Errors, Graphing Errors, and Rounding Errors: Each of these types of errors results in a 1-credit deduction. Any combination of two of these types of errors results in a 2-credit deduction. No more than 2 credits should be deducted for such mechanical errors in any response. The teacher must carefully review the student's work to determine what errors were made and what type of errors they were.

Conceptual Errors: A conceptual error involves a more serious lack of knowledge or procedure. Examples of conceptual errors include using the incorrect formula for the area of a figure, choosing the incorrect trigonometric function, or multiplying the exponents instead of adding them when multiplying terms with exponents. A response with one conceptual error can receive no more than half credit.

If a response shows repeated occurrences of the same conceptual error, the student should not be penalized twice. If the same conceptual error is repeated in responses to other questions, credit should be deducted in each response.

If a response shows two (or more) different major conceptual errors, it should be considered completely incorrect and receive no credit.

If a response shows one conceptual error and one computational, graphing, or rounding error, the teacher must award credit that takes into account both errors; i.e., awarding half credit for the conceptual error and deducting 1 credit for each mechanical error (maximum of two deductions for mechanical errors).

Part II

For each question, use the specific criteria to award a maximum of two credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(28)   **[2]** $a(2x-5)(5x+1)$, and appropriate work is shown.

[1] Appropriate work is shown, but one factoring error is made.

or

[1] Appropriate work is shown, but one conceptual error is made.

or

[1] $a(2x-5)(5x+1)$, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(29)   **[2]** $\sum_{n=1}^{15} 7n$ or $7\sum_{n=1}^{15} n$ or an equivalent expression, and appropriate work is shown.

[1] Appropriate work is shown, but one computational error is made.

or

[1] Appropriate work is shown, but one conceptual error is made.

or

[1] $\sum_{n=1}^{15} 7n$ or $7\sum_{n=1}^{15} n$ or an equivalent expression, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(30)   **[2]** Controlled experiment, and an appropriate explanation is given.

        [1] Controlled experiment, but no explanation or an inappropriate explanation is given.

or

        [1] An incorrect investigation is stated, but an appropriate explanation is given.

        [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(31)   **[2]** $y = (10.596)(1.586)^x$.

        [1] One rounding error is made.

or

        [1] One conceptual error is made, such as writing a regression equation that is not exponential.

or

        [1] The expression $(10.596)(1.586)^x$ is written, but no equation is written.

        [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(32)   **[2]** 45 and 225, and appropriate algebraic work is shown.

[1] Appropriate work is shown, but one computational error is made.

or

[1] Appropriate work is shown, but one conceptual error is made.

or

[1] 45 and 225, but a method other than algebraic is used.

or

[1] 45 or 225, and appropriate algebraic work is shown.

or

[1] 45 and 225, but no work is shown.

[0] 45 or 225, but no work is shown.

or

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(33)   **[2]** $(x+5)^2 + (y-3)^2 = 32$ or an equivalent equation, and appropriate work is shown.

[1] Appropriate work is shown, but one computational error is made.

or

[1] Appropriate work is shown, but one conceptual error is made.

or

[1] Appropriate work is shown to find $\sqrt{32}$, the radius, but no further correct work is shown.

or

[1] $(x+5)^2 + (y-3)^2 = 32$, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(34)   **[2]** $\frac{4}{9}x^2 - \frac{4}{3}x + 1$, and appropriate work is shown.

   [1] Appropriate work is shown, but one computational error is made.

or

   [1] Appropriate work is shown, but one conceptual error is made.

or

   [1] $\frac{4}{9}x^2 - \frac{4}{3}x + 1$, but no work is shown.

   [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(35)   **[2]** 39,916,800, and appropriate work is shown.

   [1] Appropriate work is shown, but one computational error is made.

or

   [1] Appropriate work is shown, but one conceptual error is made.

or

   [1] $\frac{12!}{3! \cdot 2!}$, but no further correct work is shown.

or

   [1] 39,916,800, but no work is shown.

   [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

Part III

For each question, use the specific criteria to award a maximum of four credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(36)   **[4]** $\frac{1}{3}$, and appropriate algebraic work is shown.

[3] Appropriate work is shown, but one computational error is made.

[2] Appropriate work is shown, but two or more computational errors are made.

or

[2] Appropriate work is shown, but one conceptual error is made.

or

[2] $x - 3 + 2(x + 3) = 4$ or an equivalent equation is written, but no further correct work is shown.

or

[2] $\frac{1}{3}$, but a method other than algebraic is used.

[1] Appropriate work is shown, but one conceptual error and one computational error are made.

or

[1] $\frac{1}{3}$, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(37)   **[4]** $\frac{23}{2}$ or 11.5, and appropriate work is shown.

[3] Appropriate work is shown, but one computational error is made.

[2] Appropriate work is shown, but two or more computational errors are made.

or

[2] Appropriate work is shown, but one conceptual error is made.

[1] Appropriate work is shown, but one conceptual error and one computational error are made.

or

[1] A correct substitution is made into the tan $(A + B)$ formula, but no further correct work is shown.

or

[1] $\frac{23}{2}$ or 11.5, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(38)   **[4]** 26.2, and appropriate work is shown.

[3] Appropriate work is shown, but one computational or rounding error is made.

or

[3] Appropriate work is shown, but the probability is not expressed as a percent, such as 0.3.

[2] Appropriate work is shown, but two or more computational or rounding errors are made.

or

[2] Appropriate work is shown, but one conceptual error is made, such as finding P(at most 8 fish).

or

[2] $_{10}C_8(0.65)^8(0.35)^2 + {}_{10}C_9(0.65)^9(0.35)^1 + {}_{10}C_{10}(0.65)^{10}(0.35)^0$ is written, but no further correct work is shown.

[1] Appropriate work is shown, but one conceptual error and one computational or rounding error are made.

or

[1] Appropriate work is shown to find 17.6, the probability for exactly 8 of 10 fish, but no further correct work is shown.

or

[1] 26.2, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

Part IV

For this question, use the specific criteria to award a maximum of six credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(39)　**[6]** $-\dfrac{1}{3}$ and -1, and appropriate algebraic work is shown.

[5] Appropriate work is shown, but one computational or factoring error is made.

or

[5] Appropriate work is shown, but one solution is rejected.

[4] Appropriate work is shown, but two computational or factoring errors are made.

[3] Appropriate work is shown, but three or more computational or factoring errors are made.

or

[3] Appropriate work is shown, but one conceptual error is made, such as rejecting both roots.

or

[3] A correct quadratic equation in standard form (set equal to zero) is written, but no further correct work is shown.

or

[3] $-\dfrac{1}{3}$ and -1, but a method other than algebraic is used.

[2] Appropriate work is shown, but one conceptual error and one computational or factoring error are made.

or

[2] $x(x+3)^2 = x^3 + x - 2$ or an equivalent equation is written, but no further correct work is shown.

[1] Appropriate work is shown, but one conceptual error and two or more computational or factoring errors are made.

or

[1] $-\dfrac{1}{3}$ and -1, but no work is shown.

[0] $-\dfrac{1}{3}$ or -1, but no work is shown.

or

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

Map to Core Curriculum

Content Strand	Item Numbers
Number Sense and Operations	1, 4, 24, 34
Algebra	3, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 32, 33, 36, 37, 39
Measurement	2
Statistics and Probability	12, 13, 30, 31, 35, 38

Regents Examination in Algebra 2/Trigonometry

August 2010

Chart for Converting Total Test Raw Scores to Final Examination Scores (Scale Scores)

The *Chart for Determining the Final Examination Score for the August 2010 Regents Examination in Algebra 2/Trigonometry* will be posted on the Department's web site http://www.emsc.nysed.gov/osa/ on Wednesday, August 18, 2010. Conversion charts provided for previous administrations of the Algebra 2/Trigonometry examination must NOT be used to determine students' final scores for this administration.

Online Submission of Teacher Evaluations of the Test to the Department

Suggestions and feedback from teachers provide an important contribution to the test development process. The Department provides an online evaluation form for State assessments. It contains spaces for teachers to respond to several specific questions and to make suggestions. Instructions for completing the evaluation form are as follows:

1. Go to http://www.emsc.nysed.gov/osa/teacher/evaluation.html

2. Select the test title.

3. Complete the required demographic fields.

4. Complete each evaluation question and provide comments in the space provided.

5. Click the SUBMIT button at the bottom of the page to submit the completed form.

Regents Examination in Algebra 2/Trigonometry
August 2010

Chart for Converting Total Test Raw Scores to Final Examination Scores (Scale Scores)

Raw Score	Scale Score	Raw Score	Scale Score	Raw Score	Scale Score	Raw Score	Scale Score
88	100	65	84	42	61	19	29
87	99	64	83	41	60	18	27
86	99	63	82	40	58	17	26
85	98	62	81	39	57	16	25
84	98	61	81	38	56	15	23
83	97	60	80	37	54	14	22
82	97	59	79	36	53	13	20
81	96	58	78	35	51	12	19
80	95	57	77	34	50	11	17
79	94	56	76	33	49	10	16
78	94	55	75	32	47	9	15
77	93	54	74	31	46	8	13
76	92	53	74	30	44	7	12
75	91	52	73	29	43	6	10
74	91	51	71	28	42	5	9
73	90	50	70	27	40	4	7
72	89	49	69	26	39	3	5
71	88	48	68	25	37	2	4
70	88	47	67	24	36	1	2
69	87	46	66	23	34	0	0
68	86	45	65	22	33		
67	86	44	63	21	32		
66	85	43	62	20	30		

To determine the student's final examination score, find the student's total test raw score in the column labeled "Raw Score" and then locate the scale score that corresponds to that raw score. The scale score is the student's final examination score. Enter this score in the space labeled "Scale Score" on the student's answer sheet.

All student answer papers that receive a scale score of 60 through 64 **must** be scored a second time to ensure the accuracy of the score. For the second scoring, a different committee of teachers may score the student's paper or the original committee may score the paper, except that no teacher may score the same open-ended questions that he/she scored in the first rating of the paper.

Because scale scores corresponding to raw scores in the conversion chart change from one examination to another, it is crucial that for each administration, the conversion chart provided for that administration be used to determine the student's final score. The chart above is usable only for this administration of the Regents Examination in Algebra 2/Trigonometry.