FOR TEACHERS ONLY

The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

ALGEBRA I

Tuesday, August 16, 2022 — 8:30 to 11:30 a.m., only

RATING GUIDE

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 at: http://www.nysed.gov/state-assessment/high-school-regents-examinations and select the link "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.

The Department is providing supplemental scoring guidance, the "Model Response Set," for the Regents Examination in Algebra I. This guidance is intended to be part of the scorer training. Schools are encouraged to incorporate the Model Response Sets into the scorer training or to use them as additional information during scoring. While not reflective of all scenarios, the model responses selected for the Model Response Set illustrate how less common student responses to constructed-response questions may be scored. The Model Response Set will be available on the Department's web site at http://www.nysedregents.org/algebraone/.

Mechanics of Rating

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

Do *not* attempt to correct the student's work by making insertions or changes of any kind. In scoring the constructed-response questions, 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. No one teacher is to score more than approximately one-third of the constructed-response questions on a student's paper. Teachers may not score their own students' answer papers. On the student's separate answer sheet, for each question, record the number of credits earned and the teacher's assigned rater/scorer letter.

Schools are not permitted to rescore any of the constructed-response questions on this exam after each question has been rated once, regardless of the final exam score. Schools are required to ensure that the raw scores have been added correctly and that the resulting scale score has been determined accurately.

Raters should record the student's scores for all questions and the total raw score on the student's separate 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 at: http://www.nysed.gov/state-assessment/high-school-regents-examinations on Tuesday, August 16, 2022. Because scale scores corresponding to raw scores in the conversion chart may change from one administration 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 student's scale score should be entered in the box provided on the student's separate answer sheet. The scale score is the student's final examination score.

General Rules for Applying Mathematics Rubrics

I. General Principles for Rating

The rubrics for the constructed-response questions on the Regents Examination in Algebra I 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 Examination in Algebra I*, use their own professional judgment, confer with other mathematics teachers, and/or contact 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 a 4-credit question and no more than 3 credits should be deducted in a 6-credit question. 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.

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.

For 4- and 6-credit questions, 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. Refer to the rubric for specific scoring guidelines.

Part II

For each question, use the specific criteria to award a maximum of 2 credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(25) **[2]** A correct graph is drawn.

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

or

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

[0] The line $f(x) = x + 1$ is graphed.

or

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

(26) **[2]** Exponential, and a correct explanation is written.

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

or

[1] Exponential, but an incomplete explanation is written.

[0] Exponential, but the explanation is missing or incorrect.

or

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

(27) **[2]** Rational, and a correct justification is given.

[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 28, but rational is not stated.

[0] Rational, but no justification is given.

or

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

(28) **[2]** 10.5, and correct 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] 10.5, 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.

(29) **[2]** $b = 2(a + 15)$ or an equivalent equation, and correct 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, but the solution is written as an expression.

or

[1] $g = a + 15$ and $b = 2g$, but no further correct work is shown.

or

[1] $b = 2(a + 15)$, 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]** A shift of 2 to the left is stated.

[1] One computational error is made.

or

[1] One conceptual error is made.

or

[1] An incomplete description 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.

(31) **[2]** -0.9 and 2.6, and correct algebraic work is shown.

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

or

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

or

[1] Appropriate work is shown, but only one solution is found.

or

[1] -0.9 and 2.6, but a method other than algebraic is used.

or

[1] Appropriate work is shown to find $x = \dfrac{5 \pm \sqrt{109}}{6}$, but no further correct work is shown.

or

[1] -0.9 and 2.6, 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.

(32) **[2]** $3(y - 12)(y + 8)$, and correct work is shown.

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

or

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

or

[1] $3(y - 12)(y + 8)$, 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 4 credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(33) **[4]** A correct explanation is written, *C* to *D*, 60, and 35.

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

<p align="center">***or***</p>

    [3] Appropriate work is shown, but the explanation is missing or incorrect.

    [2] Both 60 and 35 are stated, but no further correct work is shown.

    [1] *C* to *D*, but no further correct work is shown.

<p align="center">***or***</p>

    [1] Either 60 or 35 is stated, but no further correct 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) **[4]** A correct graph is drawn, 4 or 0.5 is stated, and a correct explanation is written.

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

or

[3] Appropriate work is shown, but the explanation is missing or incorrect.

or

[3] Appropriate work is shown, but the solution is missing or incorrect.

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

or

[2] Both functions are graphed correctly, but no further correct work is shown.

[1] Either $f(x)$ or $g(x)$ is graphed correctly, but no further correct work is shown.

or

[1] Appropriate algebraic work is shown to find 4 or 0.5, but no further correct work is shown.

or

[1] A correct explanation is written, but no further correct work is shown.

or

[1] Either 4 or 0.5, 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.

(35) **[4]** $2(2.99) + 1.99x + 2.50(x + 2) \leq 25$ or an equivalent inequality in one variable is written, 3, and correct algebraic work is shown.

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

or

[3] The inequality is written incorrectly, but solved appropriately.

or

[3] $2(2.99) + 1.99x + 2.50(x + 2) = 25$ is written and solved appropriately.

[2] A correct inequality is written, but no further correct work is shown.

[1] A correct inequality in more than one variable is written, but no further correct work is shown.

or

[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.

(36) **[4]** Both inequalities are graphed correctly, and at least one is labeled, the solution is labeled *S*, and a correct explanation indicating a positive response is written.

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

or

[3] Appropriate work is shown, but the solution is not labeled *S*.

or

[3] Appropriate work is shown, but the explanation is missing or incorrect.

or

[3] One inequality is graphed incorrectly, but the system is used appropriately.

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

or

[2] Both inequalities are graphed correctly and at least one is labeled, but no further correct work is shown.

[1] A correct explanation is written, but no further correct work is shown.

or

[1] One inequality is graphed and labeled correctly, but no further correct work is shown.

or

[1] $y + 3x = 5$ and $1 = 2x - y$ are graphed correctly and at least one is labeled, but no further correct 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 6 credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(37) **[6]** $30x + 50y = 420$ and $15x + 35y = 270$, a correct justification indicating a negative response is given, $x = 4$ and $y = 6$, and correct algebraic work is shown.

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

or

[5] Appropriate work is shown, but only one cost is found.

or

[5] Appropriate work is shown, but a method other than algebraic is used to find $x = 4$ and $y = 6$.

or

[5] Only one equation is written correctly, but the system is used appropriately.

[4] Appropriate work is shown, but the justification is missing or incorrect.

or

[4] A correct system of equations is written, and a correct justification indicating a negative response is given.

[3] A correct system of equations is written, and $x = 4$ and $y = 6$ are stated, but no further correct work is shown.

[2] A correct system of equations is written, but no further correct work is shown.

or

[2] A correct justification indicating a negative response is given, but no further correct work is shown.

[1] One correct equation is written, but no further correct work is shown.

or

[1] $x = 4$ and $y = 6$ are stated, but no further correct work is shown.

[0] 4 and 6, 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 the Learning Standards
Algebra I
August 2022

Question	Type	Credits	Cluster
1	Multiple Choice	2	F-IF.A
2	Multiple Choice	2	F-IF.A
3	Multiple Choice	2	A-SSE.A
4	Multiple Choice	2	F-IF.A
5	Multiple Choice	2	A-REI.D
6	Multiple Choice	2	A-APR.A
7	Multiple Choice	2	A-APR.B
8	Multiple Choice	2	A-SSE.A
9	Multiple Choice	2	F-BF.A
10	Multiple Choice	2	S-ID.A
11	Multiple Choice	2	F-IF.B
12	Multiple Choice	2	S-ID.B
13	Multiple Choice	2	F-LE.A
14	Multiple Choice	2	F-IF.C
15	Multiple Choice	2	A-REI.B
16	Multiple Choice	2	A-SSE.A
17	Multiple Choice	2	A-REI.B
18	Multiple Choice	2	A-SSE.B
19	Multiple Choice	2	A-REI.A
20	Multiple Choice	2	F-IF.A

21	Multiple Choice	2	N-Q.A
22	Multiple Choice	2	F-IF.B
23	Multiple Choice	2	S-ID.C
24	Multiple Choice	2	A-CED.A
25	Constructed Response	2	F-IF.C
26	Constructed Response	2	F-LE.A
27	Constructed Response	2	N-RN.B
28	Constructed Response	2	S-ID.A
29	Constructed Response	2	A-CED.A
30	Constructed Response	2	F-BF.B
31	Constructed Response	2	A-REI.B
32	Constructed Response	2	A-SSE.A
33	Constructed Response	4	F-IF.B
34	Constructed Response	4	A-REI.D
35	Constructed Response	4	A-CED.A
36	Constructed Response	4	A-REI.D
37	Constructed Response	6	A-CED.A

Regents Examination in Algebra I

August 2022

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

> **The *Chart for Determining the Final Examination Score for the August 2022 Regents Examination in Algebra I* will be posted on the Department's web site at: http://www.nysed.gov/state-assessment/high-school-regents-examinations by Tuesday, August 16, 2022. Conversion charts provided for previous administrations of the Regents Examination in Algebra I 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.nysed.gov/state-assessment/teacher-feedback-state-assessments.

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.