The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION**ALGEBRA I****Tuesday, August 18, 2026 — 8:30 to 11:30 a.m., only**

Student Name _____

School Name _____

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

Print your name and the name of your school on the lines above.

A separate answer sheet for **Part I** has been provided to you. Follow the instructions from the proctor for completing the student information on your answer sheet.

This examination has four parts, with a total of 35 questions. You must answer all questions in this examination. Record 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 for graphs and drawings, which should be done in pencil. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale.

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.

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

Part I

Answer all 24 questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. For each statement or question, choose the word or expression that, of those given, best completes the statement or answers the question. Record your answers on your separate answer sheet. [48]

Use this space for
computations.

1 The monarch butterfly population doubled every day during the month of June. Which kind of function best describes this situation?

- (1) linear
- (2) quadratic
- (3) exponential growth
- (4) exponential decay

2 The solution to $3x - 4 = 2.6x + 8.2$ is

- (1) 30.5
- (2) 10.5
- (3) 21.5
- (4) 3.05

3 Given: $2x + y = 6$
 $x = 4y + 12$

When solving by substitution, which equation could be a step in solving this system?

- (1) $2(4y + 12) + y = 6$
- (2) $2(-4y - 12) + y = 6$
- (3) $x = 4(-6 + 2x) + 12$
- (4) $x = 4(6 + 2x) + 12$

4 Which inequality represents 80 *decreased* by a number is *less* than 100?

- (1) $80 - n > 100$
- (2) $80 - n < 100$
- (3) $n - 80 < 100$
- (4) $n - 80 > 100$

Use this space for
computations.

- 5 Dave bought a new car for \$29,500. As soon as he drove it off the car lot, it began to depreciate in value. He was told that the car's value would continue to decline at an average yearly rate of 17.5% for the first 5 years.

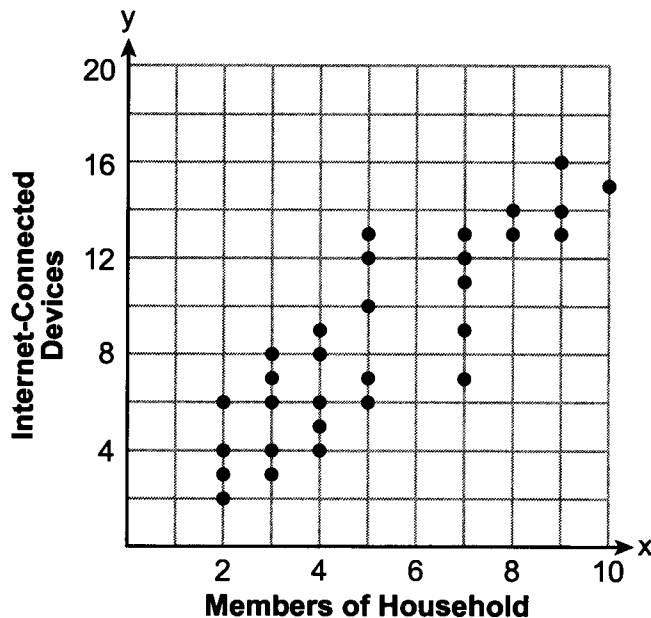
The function $V(t)$ represents the value of Dave's car in t years, where $t \leq 5$. Which function correctly models this situation?

- (1) $V(t) = 29,500(1 + 1.75)^t$ (3) $V(t) = 29,500(1 + 0.175)^t$
 (2) $V(t) = 29,500(1 - 1.75)^t$ (4) $V(t) = 29,500(1 - 0.175)^t$

- 6 Which expression is equivalent to $400 - x^2$?

- (1) $(200 - x)(200 + x)$ (3) $(20 - x)(20 + x)$
 (2) $(x - 200)(x + 200)$ (4) $(x - 20)(x + 20)$

- 7 The scatter plot below shows the relationship between the number of internet-connected devices and the number of members in a household.



For a household that has six members, what would be the best estimate for the number of internet-connected devices?

- (1) 6 (3) 14
 (2) 10 (4) 18

**Use this space for
computations.**

8 What is the equation of the axis of symmetry for $y = -x^2 + 6x$?

(1) $y = 9$

(3) $y = 3$

(2) $x = 9$

(4) $x = 3$

9 The first step in solving a quadratic equation is shown below.

$$x^2 - 2x + 3 = -12$$

$$x^2 - 2x + 15 = 0$$

Which property was used?

(1) additive identity

(2) addition property of equality

(3) commutative property of addition

(4) associative property of addition

10 A fourth-degree polynomial with a leading coefficient of eight and a constant term of twelve written in standard form is

(1) $12 + 5x^2 + 8x^4$

(3) $12 + 6x + 5x^2 + 8x^3$

(2) $8x^4 + 5x^2 + 12$

(4) $8x^3 + 5x^2 + 6x + 12$

11 If $g(x) = x^2 - x$, then what is the value of $g(-4)$?

(1) -20

(3) 12

(2) -12

(4) 20

12 A cookie recipe requires $1\frac{3}{4}$ cups of flour to make 25 cookies. Using the same recipe, how many ounces of flour are needed to make 75 cookies?

[1 cup = 8 ounces]

(1) 10.72

(3) 32.16

(2) 14

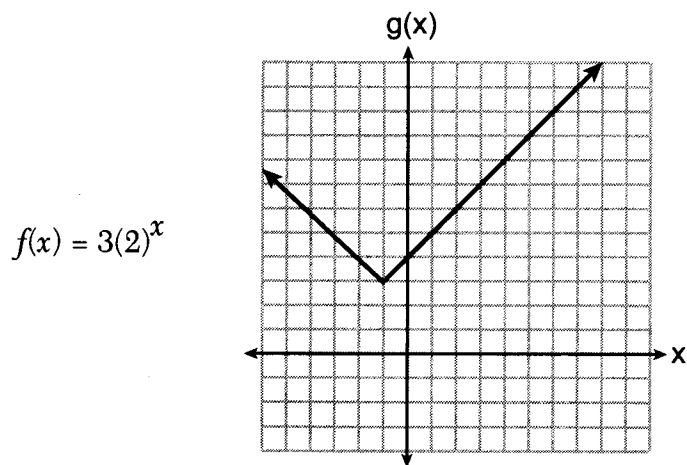
(4) 42

Use this space for
computations.

13 The product of $3\sqrt{7}$ and $\sqrt{7}$ is

- (1) rational, because the product is 21
- (2) rational, because the product of two irrational numbers is always rational
- (3) irrational, because the product of two irrational numbers is always irrational
- (4) irrational, because $\sqrt{7}$ is a nonrepeating, nonterminating decimal

14 Three functions $f(x)$, $g(x)$, and $h(x)$ are shown below.



x	$h(x)$
-1	12
0	7
1	4
2	3
3	4
4	7
5	12

Which function or functions will always increase over the interval $1 \leq x \leq 4$?

- (1) $g(x)$, only
- (2) $h(x)$, only
- (3) $f(x)$ and $g(x)$
- (4) $f(x)$ and $h(x)$

15 The zeros of $f(x) = x(x + 2)(x - 4)$ are

- (1) $\{2, -4\}$
- (2) $\{-2, 4\}$
- (3) $\{0, 2, -4\}$
- (4) $\{0, -2, 4\}$

16 Three expressions are shown below.

- I. $2^x + 6$
- II. $4^x + 3$
- III. $16 \cdot 2^x + 2$

Which of these expressions are equivalent for all values of x ?

- (1) I and II, only
- (2) I and III, only
- (3) II and III, only
- (4) I, II, and III

17 When using the method of completing the square to solve $x^2 + 4x - 11 = 0$, which equation is a correct step in the process?

- (1) $(x + 2)^2 = -7$
- (2) $(x - 2)^2 = -7$
- (3) $(x + 2)^2 = 15$
- (4) $(x - 2)^2 = 15$

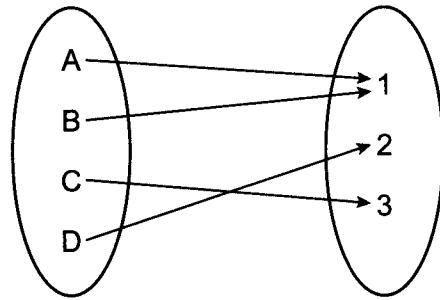
18 George and Henry are in a bowling league. Their top scores from each of the last nine weeks are listed below:

George	198	101	167	202	185	103	192	200	198
Henry	210	126	194	200	172	98	215	114	202

Which statement correctly describes the relationship between George and Henry's bowling scores?

- (1) The standard deviation for George's bowling scores is less than Henry's, but the mean for George's bowling scores is greater than Henry's.
- (2) The standard deviation for George's bowling scores is greater than Henry's, but the mean for George's bowling scores is less than Henry's.
- (3) The standard deviation and mean for George's bowling scores are both less than Henry's.
- (4) The standard deviation and mean for George's bowling scores are both greater than Henry's.

19 The mapping shown below demonstrates a relation.



Which statement about this relation is true?

- (1) It is a function because each element of the domain maps onto only one element of the range.
- (2) It is a function because each element of the range maps onto only one element of the domain.
- (3) It is not a function because each element of the domain maps onto only one element of the range.
- (4) It is not a function because each element of the range maps onto only one element of the domain.

20 The function $f(x) = |x + 6| - 5$ is shifted to the right 2 units to make the function $g(x)$. Which function represents $g(x)$?

- (1) $g(x) = |x + 4| - 5$
- (2) $g(x) = |x + 8| - 5$
- (3) $g(x) = |x + 6| - 3$
- (4) $g(x) = |x + 6| - 7$

21 The table below shows the average cost for one dozen large eggs over a period of years.

Year	2009	2010	2011	2012	2013	2014	2015	2016
Cost (\$)	1.34	2.65	2.65	2.68	2.68	2.00	2.11	2.08

What is the average rate of change of the cost, in dollars per year, from 2009 to 2016 rounded to the *nearest hundredth*?

- (1) -0.11
- (2) -0.10
- (3) 0.10
- (4) 0.11

**Use this space for
computations.**

22 Which ordered pair represents a point on the graph of $y = x^2 - 7x - 10$?

- | | |
|----------------|---------------------|
| (1) $(-10, 0)$ | (3) $(3.5, -22.5)$ |
| (2) $(10, 0)$ | (4) $(3.5, -22.25)$ |

23 When factored completely, $x^4 - 5x^3 - 36x^2$ is

- | | |
|---------------------------|--------------------------|
| (1) $x(x^3 - 5x^2 - 36x)$ | (3) $x^2(x - 9)(x + 4)$ |
| (2) $x^2(x^2 - 5x - 36)$ | (4) $(x^2 - 9)(x^2 + 4)$ |

24 When $3x^2 - 2x + 1$ is subtracted from $4x^2 + 5x - 6$, the result is

- | | |
|---------------------|--------------------|
| (1) $-x^2 + 3x - 5$ | (3) $x^2 + 3x - 5$ |
| (2) $-x^2 - 7x + 7$ | (4) $x^2 + 7x - 7$ |
-

Part II

Answer all 6 questions in this part. Each correct answer will receive 2 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. 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]

25 A survey of 200 students was taken.

It was found that 140 students play sports and 50 of the students that play sports buy their lunch.

One-third of students who do *not* play sports bring their lunch.

Complete the two-way frequency table below.

	Buy Lunch	Bring Lunch	Total
Play Sports			
Don't Play Sports			
Total			

26 Solve the formula $y = mx + b$ for x in terms of y , m , and b .

27 Solve $\frac{3}{4}x + \frac{2}{5} < \frac{1}{4}x - \frac{2}{5}$ for x .

28 Given the sequence: $-5, -2, 1, 4, \dots$

Write an equation for the n th term of this sequence.

State the tenth term of this sequence.

29 Use the quadratic formula to solve $2x^2 + 3x - 1 = 0$ for the exact values of x .

30 Perform the indicated operation and express your answer in simplest radical form.

$$5\sqrt{32} + 10\sqrt{2}$$

Part III

Answer all 4 questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. 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]

31 The following table shows the average length of a baby girl from birth to 24 months.

Age (months), x	0	3	6	9	12	15	18	21	24
Length (cm), y	53	64	70	75	79	83	86	90	93

Write a linear regression equation for this set of data. Round all values to the *nearest hundredth*.

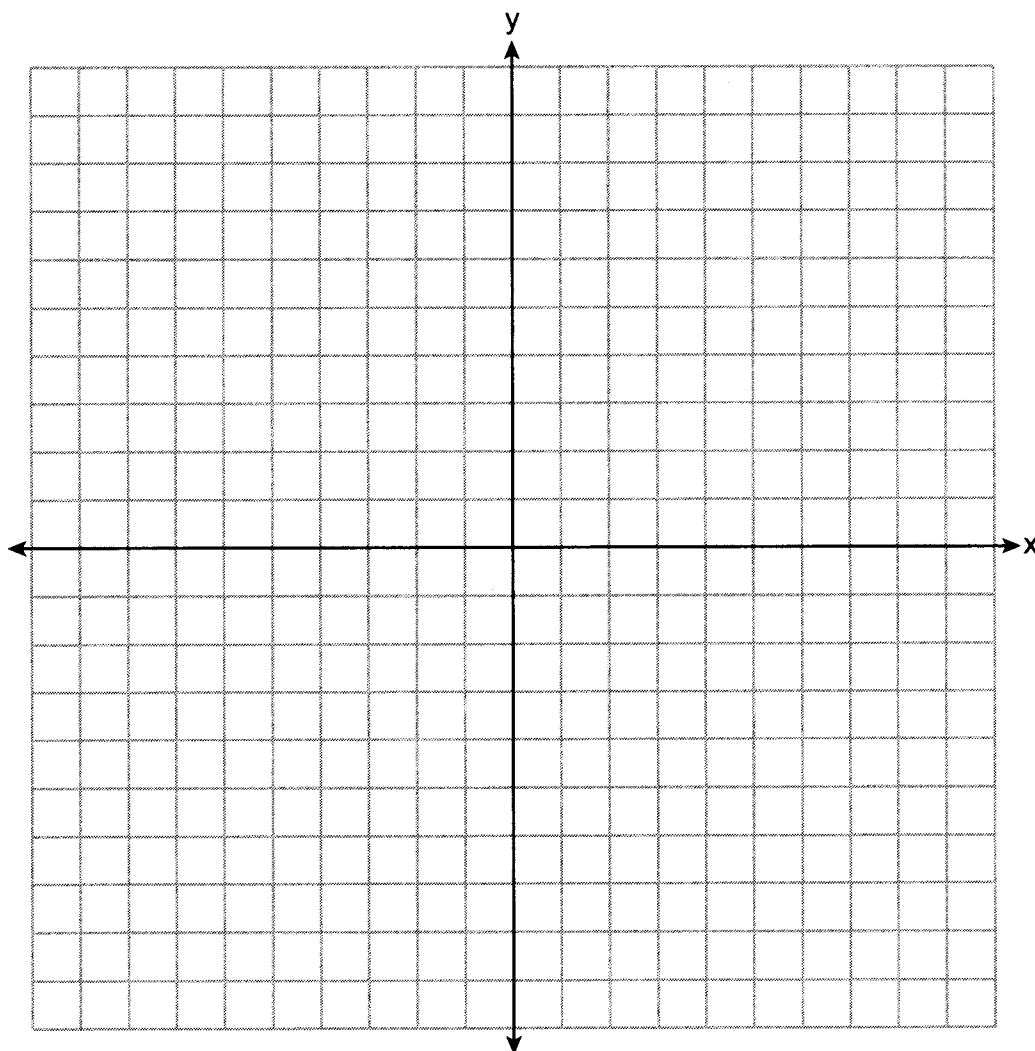
State the correlation coefficient for this data set, rounded to the *nearest hundredth*.

State what the correlation coefficient indicates about the linear fit of the data.

32 Solve this system of inequalities graphically, on the set of axes below.

Label the solution set S.

$$y + 5 > 2x$$
$$3y \leq 2x + 6$$

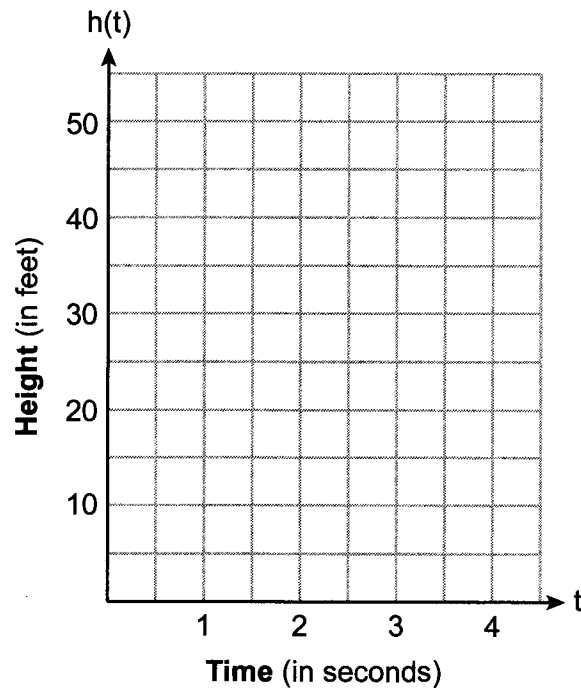


Is the point $(2, -1)$ a solution for this system of inequalities?

Justify your answer.

- 33** Joey threw a basketball into the air. The height of the basketball can be represented by the equation $h(t) = -16t^2 + 48t + 5$, where h is the height of the ball, in feet, and t is the time, in seconds, after the ball was thrown.

Sketch the graph of the equation on the set of axes below.



State the number of seconds it takes for the ball to reach its maximum height.

State the maximum height, in feet, the ball reaches.

34 Solve the following system of equations algebraically for all values of x and y :

$$y = x^2 + 4x - 3$$

$$y = 2x + 5$$

Part IV

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. Utilize the information provided to determine your answer. Note that diagrams are not necessarily drawn to scale. 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. [6]

35 Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

Regents Examination in Algebra I – August 2026

Scoring Key: Part I (Multiple-Choice Questions)

Examination	Date	Question Number	Scoring Key	Question Type	Credit
Algebra I	August '26	1	3	MC	2
Algebra I	August '26	2	1	MC	2
Algebra I	August '26	3	1	MC	2
Algebra I	August '26	4	2	MC	2
Algebra I	August '26	5	4	MC	2
Algebra I	August '26	6	3	MC	2
Algebra I	August '26	7	2	MC	2
Algebra I	August '26	8	4	MC	2
Algebra I	August '26	9	2	MC	2
Algebra I	August '26	10	2	MC	2
Algebra I	August '26	11	4	MC	2
Algebra I	August '26	12	4	MC	2
Algebra I	August '26	13	1	MC	2
Algebra I	August '26	14	3	MC	2
Algebra I	August '26	15	4	MC	2
Algebra I	August '26	16	2	MC	2
Algebra I	August '26	17	3	MC	2
Algebra I	August '26	18	1	MC	2
Algebra I	August '26	19	1	MC	2
Algebra I	August '26	20	1	MC	2
Algebra I	August '26	21	4	MC	2
Algebra I	August '26	22	4	MC	2
Algebra I	August '26	23	3	MC	2
Algebra I	August '26	24	4	MC	2

Regents Examination in Algebra I – August 2026

Scoring Key: Parts II, III, and IV (Constructed-Response Questions)

Examination	Date	Question Number	Scoring Key	Question Type	Credit
Algebra I	August '26	25	-	CR	2
Algebra I	August '26	26	-	CR	2
Algebra I	August '26	27	-	CR	2
Algebra I	August '26	28	-	CR	2
Algebra I	August '26	29	-	CR	2
Algebra I	August '26	30	-	CR	2
Algebra I	August '26	31	-	CR	4
Algebra I	August '26	32	-	CR	4
Algebra I	August '26	33	-	CR	4
Algebra I	August '26	34	-	CR	4
Algebra I	August '26	35	-	CR	6

Key

MC = Multiple-choice question
CR = Constructed-response question

The chart for determining students' final examination scores for the **August 2026 Regents Examination in Algebra I** will be posted on the Department's web site at: <https://www.nysedregents.org/algebraone/> on the day of the examination. Conversion charts provided for the previous administrations of the Regents Examination in Algebra I must NOT be used to determine students' final scores for this administration.



FOR TEACHERS ONLY

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

ALGEBRA I

Tuesday, August 18, 2026 — 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 website during the rating period. Check this website at: <https://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 should use the Model Response Set along with the rubrics in the Rating Guide to help guide scoring of student work. 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 website at <https://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 website at: <https://www.nysed.gov/state-assessment/high-school-regents-examinations> on the day of the examination. 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] The frequency table is completed correctly.

	Buy lunch	Bring lunch	Total
Play Sports	50	90	140
Don't Play Sports	40	20	60
Total	90	110	200

[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] 20 is written correctly in the table, but no further correct work is shown.

[0] Only the given information of 200, 140, and 50 is written in the table.

or

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(26) [2] $x = \frac{y - b}{m}$, 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] $x = \frac{y - b}{m}$, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(27) [2] $x < -\frac{8}{5}$, 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] $x < -\frac{8}{5}$, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(28) [2] $a_n = -5 + 3(n - 1)$, and 22 is stated.

[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] $a_n = -5 + 3(n - 1)$, but no further correct work is shown.

or

[1] 22 is stated, but no further correct work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(29) **[2]** $\frac{-3 \pm \sqrt{17}}{4}$, 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] A correct substitution into the quadratic formula is made, but no further correct work is shown.

or

[1] $\frac{-3 \pm \sqrt{17}}{4}$, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(30) **[2]** $30\sqrt{2}$, and correct work is shown.

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

or

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

or

[1] $20\sqrt{2}$, but no further correct work is shown.

or

[1] $30\sqrt{2}$, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, 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.

(31) [4] $y = 1.54x + 58.47$, 0.98, and strong is stated.

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

or

[3] The full display of the student's calculator showing incorrect values for a , b , and r is written, but used appropriately.

or

[3] Appropriate work is shown, but an expression is written instead of an equation.

[2] $y = 1.54x + 58.47$, but no further correct work is shown.

[1] 0.98 is stated, but no further correct work is shown.

or

[1] Strong is stated, but no further correct work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

- (32) [4] Both inequalities are graphed correctly and at least one is labeled, the solution set is labeled S , and a correct justification indicating a negative response is given.
- [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 justification is missing or incorrect.
- or**
- [3] One inequality is graphed incorrectly, but the system is used appropriately.
- [2] Both inequalities are graphed correctly and at least one is labeled, but no further correct work is shown.
- [1] One inequality is graphed and labeled correctly, but no further correct work is shown.
- or**
- [1] A correct justification is given, but no further correct work is shown.
- or**
- [1] $y + 5 = 2x$ and $3y = 2x + 6$ are graphed correctly, and at least one is labeled, but no further correct work is shown.
- [0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.
- (33) [4] A correct graph is drawn, and 1.5 and 41 are stated.
- [3] Appropriate work is shown, but one graphing error is made.
- or**
- [3] Appropriate work is shown, but only 1.5 or 41 is stated.
- [2] A correct graph is drawn, but no further correct work is shown.
- or**
- [2] 1.5 and 41 are stated, but no further correct work is shown.
- [1] 1.5 or 41 is stated.
- [0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(34) [4] $x = 2, y = 9$ and $x = -4, y = -3$ or $(2,9)$ and $(-4,-3)$, and correct algebraic work is shown.

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

or

[3] Appropriate work is shown, $x = 2$ and $x = -4$, but no further correct work is shown.

or

[3] Appropriate work is shown to find either $(2,9)$ or $(-4,-3)$, but no further correct work is shown.

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

or

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

or

[2] Appropriate work is shown to find $(x - 2)(x + 4) = 0$, but no further correct work is shown.

or

[2] Appropriate work is shown to find $(x + 1)^2 = 9$, but no further correct work is shown.

or

[2] A correct substitution into the quadratic formula is made, but no further correct work is shown.

or

[2] $x = 2, y = 9$ and $x = -4, y = -3$, but a method other than algebraic is used.

[1] A correct quadratic equation in standard form is written, but no further correct work is shown.

or

[1] $x = 2, y = 9$ and $x = -4, y = -3$ are stated, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, 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.

- (35) [6] $6m + 4d = 20.70$ and $3m + 6d = 21.51$, a correct justification indicating a negative response is given, and correct algebraic work is shown to find $m = 1.59$ and $d = 2.79$.

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

or

[5] One equation is written incorrectly, but the system is used appropriately.

or

[5] Appropriate work is shown, but a method other than algebraic is used to find $m = 1.59$ and $d = 2.79$.

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

or

[4] A correct system of equations is written and solved correctly, but no further correct work is shown.

[3] Correct algebraic work is shown to find either $m = 1.59$ or $d = 2.79$, but no further correct work is shown.

or

[3] A correct system of equations is written, but a justification indicating a positive response is given based on substituting in only one equation, 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 equation is written correctly, but no further correct work is shown.

or

[1] An incomplete justification is given, but no further correct work is shown.

or

[1] $m = 1.59$ and $d = 2.79$ are stated, but no work is shown.

[0] 1.59 and 2.79 are stated.

or

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

Map to the Learning Standards
Algebra I
August 2026

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

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

The *Chart for Determining the Final Examination Score for the August 2026 Regents Examination in Algebra I* will be posted on the Department's website at: <https://www.nysed.gov/state-assessment/high-school-regents-examinations> no later than on the day of the examination. 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 <https://www.nysed.gov/state-assessment/teacher-feedback-state-assessments>.
2. Click Regents Examinations.
3. Complete the required demographic fields.
4. Select the test title from the Regents Examination dropdown list.
5. Complete each evaluation question and provide comments in the space provided.
6. Click the SUBMIT button at the bottom of the page to submit the completed form.

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

ALGEBRA I

Wednesday, August 18, 2026 — 8:30 to 11:30 a.m., only

MODEL RESPONSE SET

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Question 25

25 A survey of 200 students was taken.

It was found that 140 students play sports and 50 of the students that play sports buy their lunch.

One-third of students who do *not* play sports bring their lunch.

Complete the two-way frequency table below.

	Buy lunch	Bring lunch	Total
Play Sports	50	90	140
Don't Play Sports	40	20	60
Total	90	110	200

Score 2: The student gave a complete and correct response.

Question 25

25 A survey of 200 students was taken.

It was found that 140 students play sports and 50 of the students that play sports buy their lunch.

One-third of students who do not play sports bring their lunch.

Complete the two-way frequency table below.

	Buy lunch	Bring lunch	Total
Play Sports	50	90	140
Don't Play Sports	40	20	60
Total	90	110	200

$$\begin{array}{r} 200 \\ - 140 \\ \hline 60 \end{array}$$

$$\begin{array}{r} 140 \\ - 50 \\ \hline 90 \end{array}$$

$$\begin{array}{r} 60 \\ - 20 \\ \hline 40 \end{array}$$

Score 2: The student gave a complete and correct response.

Question 25

25 A survey of 200 students was taken.

It was found that 140 students play sports and 50 of the students that play sports buy their lunch.

One-third of students who do not play sports bring their lunch.

Complete the two-way frequency table below.

	Buy lunch	Bring lunch	Total
Play Sports	50	90	140
Don't Play Sports	40	20	60
Total	90	120	200

Score 1: The student made one computational error.

Question 25

25 A survey of 200 students was taken.

It was found that 140 students play sports and 50 of the students that play sports buy their lunch.

One-third of students who do *not* play sports bring their lunch.

~~Complete the two-way frequency table below.~~

	Buy lunch	Bring lunch	Total
Play Sports	50	90	140
Don't Play Sports	20	40	60
Total	70	130	200

Score 1: The student reversed the 20 and 40.

Question 25

25 A survey of 200 students was taken.

It was found that 140 students play sports and 50 of the students that play sports buy their lunch.

One-third of students who do *not* play sports bring their lunch.

Complete the two-way frequency table below.

	Buy lunch	Bring lunch	Total
Play Sports	50	90	140
Don't Play Sports	35	25	60
Total	85	115	200

Score 1: The student made one computational error when finding $\frac{1}{3}$ of 60.

Question 25

25 A survey of 200 students was taken.

It was found that 140 students play sports and 50 of the students that play sports buy their lunch.

One-third of students who do *not* play sports bring their lunch.

Complete the two-way frequency table below.

	Buy lunch	Bring lunch	Total
Play Sports	50	90	140
Don't Play Sports	150	10	160
Total	200	200	200

$$\frac{1}{3}$$

Score 0: The student did not show enough course-level work to receive any credit.

Question 25

25 A survey of 200 students was taken.

It was found that 140 students play sports and 50 of the students that play sports buy their lunch.

One-third of students who do *not* play sports bring their lunch.

Complete the two-way frequency table below.

	Buy lunch	Bring lunch	Total
Play Sports	50	120	70
Don't Play Sports	50	30	70
Total	100	40	140

Score 0: The student did not show enough course-level work to receive any credit.

Question 26

26 Solve the formula $y = mx + b$ for x in terms of y , m , and b .

$$\begin{aligned} y &= mx + b \\ y - b &= \frac{mx}{m} \\ \frac{y - b}{m} &= x \end{aligned}$$

Score 2: The student gave a complete and correct response.

Question 26

26 Solve the formula $y = mx + b$ for x in terms of y , m , and b .

$$y = mx + b$$

Solve for x

$$\begin{array}{r} y = mx + b \\ -b \quad -b \end{array}$$

$$\frac{y-b}{m} = \frac{mx}{m}$$

$$\frac{y-b}{m} = x \rightarrow x = \frac{y-b}{m}$$

Score 2: The student gave a complete and correct response.

Question 26

26 Solve the formula $y = mx + b$ for x in terms of y , m , and b .

$$\begin{array}{l} y = mx + b \\ -b \quad -b \\ \hline b - y = mx \\ \frac{b - y}{m} = \frac{mx}{m} \\ \hline \frac{b - y}{m} = x \end{array}$$

Score 1: The student subtracted in the wrong order.

Question 26

26 Solve the formula $y = \frac{mx}{n} + b$ for x in terms of y , m , and b .

↓

$$\frac{b+y}{m} = x$$

Score 1: The student incorrectly added b .

Question 26

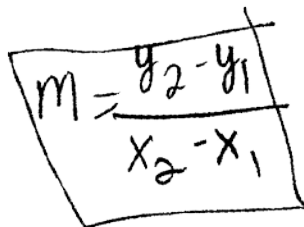
26 Solve the formula $y = mx + b$ for x in terms of y , m , and b .

$$\begin{array}{r} y = mx + b \\ -b \quad -b \\ \hline y - b = mx \\ +b \quad +b \\ \hline y = mx + b \end{array}$$

Score 0: The student did not show enough course-level work to receive any credit.

Question 26

26 Solve the formula $y = mx + b$ for x in terms of y , m , and b .



A handwritten formula for the slope m is shown inside a hand-drawn parallelogram. The formula is $m = \frac{y_2 - y_1}{x_2 - x_1}$. The numerator $y_2 - y_1$ is written above a horizontal line, and the denominator $x_2 - x_1$ is written below it.

Score 0: The student did not show enough course-level work to receive any credit.

Question 27

27 Solve $\frac{3}{4}x + \frac{2}{5} < \frac{1}{4}x - \frac{2}{5}$ for x .

$$\begin{array}{ccc} \frac{3}{4}x + \frac{2}{5} < \frac{1}{4}x - \frac{2}{5} \\ -\frac{1}{4}x & & -\frac{1}{4}x \end{array}$$

$$\begin{array}{ccc} \frac{2}{4}x + \frac{2}{5} < -\frac{2}{5} \\ & -\frac{2}{5} & -\frac{2}{5} \end{array}$$

$$\begin{array}{ccc} \frac{2}{4}x < -\frac{4}{5} \\ \hline \frac{2}{4} & & \frac{2}{4} \end{array}$$

$$\boxed{x < -\frac{8}{5}}$$

Score 2: The student gave a complete and correct response.

Question 27

27 Solve $\frac{3}{4}x + \frac{2}{5} < \frac{1}{4}x - \frac{2}{5}$ for x .

$$15x + 8 < 5x - 8$$

$$10x + 8 < -8$$

$$\frac{10x}{10} < \frac{-16}{10}$$

$$x < -8/5$$

Score 2: The student gave a complete and correct response.

Question 27

27 Solve $\frac{3}{4}x + \frac{2}{5} < \frac{1}{4}x - \frac{2}{5}$ for x .

$$\begin{array}{c} \frac{1}{2}x + \frac{4}{5} < 0 \\ -\frac{4}{5} \end{array}$$

$$\begin{array}{l} \frac{4}{5} \div \frac{1}{2} \\ \frac{4}{5} \times \frac{2}{1} = \frac{8}{5} \end{array}$$

$$\frac{\frac{1}{2}x}{\frac{1}{2}} < \frac{-\frac{4}{5}}{\frac{1}{2}}$$

$$x < 1.6$$

Score 1: The student wrote 1.6 instead of -1.6 .

Question 27

27 Solve $\frac{3}{4}x + \frac{2}{5} < \frac{1}{4}x - \frac{2}{5}$ for x .

$$\begin{array}{r}
 \frac{3}{4}x + \frac{2}{5} = \frac{1}{4}x - \frac{2}{5} \\
 -\frac{3}{4}x \quad -\frac{3}{4}x \\
 \hline
 \frac{2}{5} = -\frac{1}{2}x - \frac{2}{5} \\
 +\frac{2}{5} \quad +\frac{2}{5} \\
 \hline
 \frac{4}{5} = -\frac{1}{2}x \\
 \frac{4}{5}x \div -\frac{1}{2} \div -\frac{1}{2} \\
 \hline
 x = -\frac{8}{5}
 \end{array}$$

Score 1: The student solved an appropriate equation.

Question 27

27 Solve $\frac{3}{4}x + \frac{2}{5} < \frac{1}{4}x - \frac{2}{5}$ for x .

$$\frac{3}{4}x < \frac{1}{4}x - \frac{4}{5}$$

$$\frac{2}{4}x < \frac{4}{5}$$

$$x < 3.2$$

Score 0: The student made multiple errors.

Question 27

27 Solve $\frac{3}{4}x + \frac{2}{5} < \frac{1}{4}x - \frac{2}{5}$ for x .

$$\frac{3}{4}x + \frac{2}{5} < \frac{1}{4}x - \frac{2}{5}$$

$$\frac{1}{4}x \quad \frac{1}{4}x$$

$$\frac{1}{2}x + \frac{2}{5} < -\frac{2}{5}$$

$$\frac{1}{2}x \quad \frac{1}{2}x$$

$$\frac{4}{5} > -\frac{4}{5}$$

$$-\frac{4}{5} \div \frac{4}{5} = -1$$

Score 0: The student did not show enough course-level work to receive any credit.

Question 28

28 Given the sequence: $-5, -2, 1, 4, \dots$

Write an equation for the n th term of this sequence.

$$\begin{aligned} a_n &= -5 + 3(n-1) \\ a_n &= -5 + 3n - 3 \\ -5, -2, 1, 4, 7, 10, 13, 16, 19, 22, \\ 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9 \quad 10 \end{aligned}$$

State the tenth term of this sequence.

22

Score 2: The student gave a complete and correct response.

Question 28

28 Given the sequence: $-5, -2, 1, 4, \dots$

Write an equation for the n th term of this sequence.

$$a_n = 3n - 8$$

State the tenth term of this sequence.

$$22$$

Score 2: The student gave a complete and correct response.

Question 28

28 Given the sequence: $-5, -2, 1, 4, \dots$

Write an equation for the n th term of this sequence.

$$a_n = a_{n-1} + 3$$

State the tenth term of this sequence.

$-5, -2, 1, 4, 7, 10, 13, 16, 19, \underline{22}$

Score 1: The student stated 22, but no further correct work is shown.

Question 28

28 Given the sequence: $-5, -2, 1, 4, \dots$

Write an equation for the n th term of this sequence.

L1	L2		L1	L2
1	-5		7	13
2	-2		8	16
3	1		9	19
4	4		10	22
5	7			
6	10			

State the tenth term of this sequence.

$$Y = ax + b$$

$$Y = 3x - 8$$

$$Y = 3(10) - 8$$

$$Y = 22$$

Score 1: The student did not use n in their equation, but stated 22.

Question 28

28 Given the sequence: $-5, -2, 1, 4, \dots$

Write an equation for the n th term of this sequence.

$$a_n = -5(3)^{n-1}$$

State the tenth term of this sequence.

$$\begin{aligned} a_{10} &= -5(3)^{10-1} \\ a_{10} &= -5(3)^9 \\ a_{10} &= -98415 \end{aligned}$$

Score 1: The student wrote an equation for a geometric sequence, but found an appropriate answer.

Question 28

28 Given the sequence: $-5, -2, 1, 4, \dots$

Write an equation for the n th term of this sequence.

1	-5	3
2	-2	
3	1	3
4	4	3
5	7	

$$- \quad 4-1 = 3$$

$$-5 + 3(n-1)$$

$$-5 + 3n + 3$$

$$-2 + 3n$$

State the tenth term of this sequence.

5	7
6	10
7	13
8	16
9	19
10	22

$$a_{10} = 22$$

Score 1: The student wrote an expression instead of an equation, but stated 22.

Question 28

28 Given the sequence: $-5, -2, 1, 4, \dots, 7, 10, 13, 16, 19, 21$

Write an equation for the n th term of this sequence.

State the tenth term of this sequence.

$-5 - 2 1 4 7 10 13 16 19 \boxed{21}$

21 is the tenth term of this sequence.

Score 0: The student did not write an equation for the n th term and made a computational error.

Question 28

28 Given the sequence: $-5, -2, 1, 4, \dots$

Write an equation for the n th term of this sequence.

$-5, -2, 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, \dots$

State the tenth term of this sequence.

20 is the
tenth term of
the sequence.

Score 0: The student did not show enough course-level work to receive any credit.

Question 29

29 Use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ to solve $2x^2 + 3x - 1 = 0$ for the exact values of x .

$$a: 2$$

$$b: 3$$

$$c: -1$$

$$\frac{-(-3) \pm \sqrt{(-3)^2 - 4(2)(-1)}}{2(2)} \rightarrow \frac{-3 \pm \sqrt{17}}{4}$$

$$x = \frac{-3 \pm \sqrt{17}}{4}$$

Score 2: The student gave a complete and correct response.

Question 29

29 Use the quadratic formula to solve $2x^2 + 3x - 1 = 0$ for the exact values of x .

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$
$$x = \frac{-3 \pm \sqrt{3^2 - 4(2)(-1)}}{2(2)}$$

$$x = \frac{-3 \pm \sqrt{17}}{4}$$

Score 2: The student gave a complete and correct response.

Question 29

29 Use the quadratic formula to solve $2x^2 + 3x - 1 = 0$ for the exact values of x .

$$x = \frac{-b \pm \sqrt{b^2 - 4(a)(c)}}{2a}$$

$$a = 2 \quad b = 3 \quad c = -1$$

$$\frac{- (3) \pm \sqrt{(3)^2 - 4(2)(-1)}}{2(2)}$$

$$\frac{-3 \pm \sqrt{17}}{4}$$

$$\frac{-3 + \sqrt{17}}{4}$$

$$= 0.3$$

$$\frac{-3 - \sqrt{17}}{4}$$

$$= -1.8$$

Score 1: The student expressed their answers as rounded decimals.

Question 29

29 Use the quadratic formula to solve $2x^2 + 3x - 1 = 0$ for the exact values of x .

$$\begin{aligned} & \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} & \frac{3 + \sqrt{1}}{4} & \frac{3 - \sqrt{1}}{4} \\ & \frac{-(3) \pm \sqrt{(3)^2 - 4(2)(-1)}}{2(2)} & = \frac{4}{4} & = \frac{2}{4} \\ & \frac{-3 \pm \sqrt{9 - 8}}{4} & \boxed{x = 1} & \boxed{x = 0.5} \\ & \frac{-3 \pm \sqrt{1}}{4} \end{aligned}$$

Score 1: The student made a correct substitution into the quadratic formula.

Question 29

29 Use the quadratic formula to solve $2x^2 + 3x - 1 = 0$ for the exact values of x .

$$2x^2 + 3x - 1 = 0$$
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$
$$x = -3 + \sqrt{3^2 - 4(2)(-1)}$$
$$x = -3 + \sqrt{11}$$

Score 0: The student incorrectly used the quadratic formula.

Question 29

29 Use the quadratic formula to solve $2x^2 + 3x - 1 = 0$ for the exact values of x .

$$X = \frac{-b \pm \sqrt{b^2 - 4(A)(C)}}{2(A)}$$

$$X = \frac{-3x \pm \sqrt{3x^2 - 4(2x^2)(-1)}}{2(2x^2)}$$

Score 0: The student did not show enough correct work to receive any credit.

Question 30

30 Perform the indicated operation and express your answer in simplest radical form.

1, 4, 9, 16, 25, 36 $5\sqrt{32} + 10\sqrt{2}$

$$5\sqrt{16}\sqrt{2} + 10\sqrt{2}$$

$$5 \cdot 4\sqrt{2} + 10\sqrt{2}$$

$$20\sqrt{2} + 10\sqrt{2}$$

$$\boxed{30\sqrt{2}}$$

Score 2: The student gave a complete and correct response.

Question 30

30 Perform the indicated operation and express your answer in simplest radical form.

$$5\sqrt{32} + 10\sqrt{2}$$

$$5\sqrt{32} + 10\sqrt{2}$$

$$5\sqrt{16\sqrt{2}} + 10\sqrt{2}$$

$$5 \times 4\sqrt{2} + 10\sqrt{2}$$

Score 1: The student made one simplification error, by not combining like terms.

Question 30

30 Perform the indicated operation and express your answer in simplest radical form.

$$5\sqrt{32} + 10\sqrt{2}$$

$$5\sqrt{4\sqrt{8}} + 10\sqrt{2}$$

$$10\sqrt{8} + 10\sqrt{2}$$

Score 1: The student did not express their answer in simplest radical form.

Question 30

30 Perform the indicated operation and express your answer in simplest radical form.

$$5\sqrt{32} + 10\sqrt{2}$$

$$\begin{array}{r} 5 \cdot 6 + 10\sqrt{2} \\ \downarrow \qquad \downarrow \\ 30 + 10\sqrt{2} \end{array}$$

Score 1: The student made one simplification error, but understood that the terms could not be combined.

Question 30

30 Perform the indicated operation and express your answer in simplest radical form.

$$5\sqrt{32} + 10\sqrt{2}$$

$$5\sqrt{32} + 10\sqrt{2}$$

$$\frac{5\sqrt{8} \sqrt{4}}{2\sqrt{2}}$$

$$10\sqrt{8}\sqrt{2}$$

$$10\sqrt{4} + 10\sqrt{2}$$

Score 0: The student made multiple errors.

Question 30

30 Perform the indicated operation and express your answer in simplest radical form.

$$5\sqrt{32} + 10\sqrt{2}$$

$$28.28 + 14.14$$

$$42.42$$

Score 0: The student did not show enough course-level work to receive any credit.

Question 31

31 The following table shows the average length of a baby girl from birth to 24 months.

Age (months), x	0	3	6	9	12	15	18	21	24
Length (cm), y	53	64	70	75	79	83	86	90	93

Write a linear regression equation for this set of data. Round all values to the *nearest hundredth*.

$$y = 1.54x + 58.47$$

State the correlation coefficient for this data set, rounded to the *nearest hundredth*.

$$r = 0.98$$

State what the correlation coefficient indicates about the linear fit of the data.

Strong, positive and as
age goes up Length goes up

Score 4: The student gave a complete and correct response.

Question 31

31 The following table shows the average length of a baby girl from birth to ^{2 years} 24 months.

Age (months), x	0	3	6	9	12	15	18	21	24
Length (cm), y	53	64	70	75	79	83	86	90	93

Write a linear regression equation for this set of data. Round all values to the nearest hundredth.

$$y = ax + b$$
$$y = 1.54x + 58.47$$

State the correlation coefficient for this data set, rounded to the nearest hundredth.

$$r = .98$$

State what the correlation coefficient indicates about the linear fit of the data.

There is a strong correlation between the age of a baby girl and the length she is.

Score 4: The student gave a complete and correct response.

Question 31

31 The following table shows the average length of a baby girl from birth to 24 months.

Age (months), x	0	3	6	9	12	15	18	21	24
Length (cm), y	53	64	70	75	79	83	86	90	93

Write a linear regression equation for this set of data. Round all values to the *nearest hundredth*.

$$y = 1.54x + 58.47$$
$$a = 1.54447$$
$$b = 58.4666$$

State the correlation coefficient for this data set, rounded to the *nearest hundredth*.

$$r = 0.97847$$

State what the correlation coefficient indicates about the linear fit of the data.

If we would to graph the data the line would be a strong positive

Score 3: The student stated an r value that was not rounded.

Question 31

31 The following table shows the average length of a baby girl from birth to 24 months.

Age (months), x	0	3	6	9	12	15	18	21	24
Length (cm), y	53	64	70	75	79	83	86	90	93

Stat
edit

enter data into L2

Stat Write a linear regression equation for this set of data. Round all values to the *nearest hundredth*.

Calc

$$y = 1.54 + 58.47x$$

LinReg

State the correlation coefficient for this data set, rounded to the *nearest hundredth*.

correlation coefficient is .98

State what the correlation coefficient indicates about the linear fit of the data.

It is a very strong pos correlation
between Age and Length

Score 3: The student is missing the x in the equation.

Question 31

31 The following table shows the average length of a baby girl from birth to 24 months.

Age (months), x	0	3	6	9	12	15	18	21	24
Length (cm), y	53	64	70	75	79	83	86	90	93

Write a linear regression equation for this set of data. Round all values to the *nearest hundredth*.

$$y = ax + b$$

$$a = 1.5444444444$$

$$b = 58.4666667$$

$$y = 1.54x + 58.47$$

State the correlation coefficient for this data set, rounded to the *nearest hundredth*.

State what the correlation coefficient indicates about the linear fit of the data.

Score 2: The student wrote a correct equation.

Question 31

31 The following table shows the average length of a baby girl from birth to 24 months.

Age (months), x	0	3	6	9	12	15	18	21	24
Length (cm), y	53	64	70	75	79	83	86	90	93

Write a linear regression equation for this set of data. Round all values to the nearest hundredth.

$$y = ax + b$$
$$y = 1.54x + 58.47$$

State the correlation coefficient for this data set, rounded to the *nearest hundredth*.

positive correlation
8.22

State what the correlation coefficient indicates about the linear fit of the data.

It shows that the ~~correlation~~ linear fit
is positive

Score 2: The student wrote a correct equation.

Question 31

31 The following table shows the average length of a baby girl from birth to 24 months.

Age (months), x	0	3	6	9	12	15	18	21	24
Length (cm), y	53	64	70	75	79	83	86	90	93

Write a linear regression equation for this set of data. Round all values to the *nearest hundredth*.

$$.978 = .98$$

State the correlation coefficient for this data set, rounded to the *nearest hundredth*.

$$.98$$

State what the correlation coefficient indicates about the linear fit of the data.

that there is a strong connection

Score 1: The student stated strong.

Question 31

31 The following table shows the average length of a baby girl from birth to 24 months.

Age (months), x	0	3	6	9	12	15	18	21	24
Length (cm), y	53	64	70	75	79	83	86	90	93

Write a linear regression equation for this set of data. Round all values to the *nearest hundredth*.

$$y = 1.49x + 59.22$$

State the correlation coefficient for this data set, rounded to the *nearest hundredth*.

$$r = .98$$

State what the correlation coefficient indicates about the linear fit of the data.

Score 1: The student stated the correct correlation coefficient.

Question 31

31 The following table shows the average length of a baby girl from birth to 24 months.

Age (months), x	0	3	6	9	12	15	18	21	24
Length (cm), y	53	64	70	75	79	83	86	90	93

Write a linear regression equation for this set of data. Round all values to the *nearest hundredth*.

$$\begin{aligned}a &= 1.544444444 \\b &= 58.44444444 \\r &= .9789103451\end{aligned}$$

State the correlation coefficient for this data set, rounded to the *nearest hundredth*.

The correlation coefficient for this data set is
 $r = 1$

State what the correlation coefficient indicates about the linear fit of the data.

Score 0: The student did not write an equation and no further correct work is shown.

Question 31

31 The following table shows the average length of a baby girl from birth to 24 months.

Age (months), x	0	3	6	9	12	15	18	21	24
Length (cm), y	53	64	70	75	79	83	86	90	93

Write a linear regression equation for this set of data. Round all values to the *nearest hundredth*.

$$y = mx + b$$
$$y = 3.\overline{66}x + 53$$
$$\frac{\Delta y}{\Delta x} = \frac{11}{3} = 3.66$$

State the correlation coefficient for this data set, rounded to the *nearest hundredth*.

$$3.\overline{66}$$

State what the correlation coefficient indicates about the linear fit of the data.

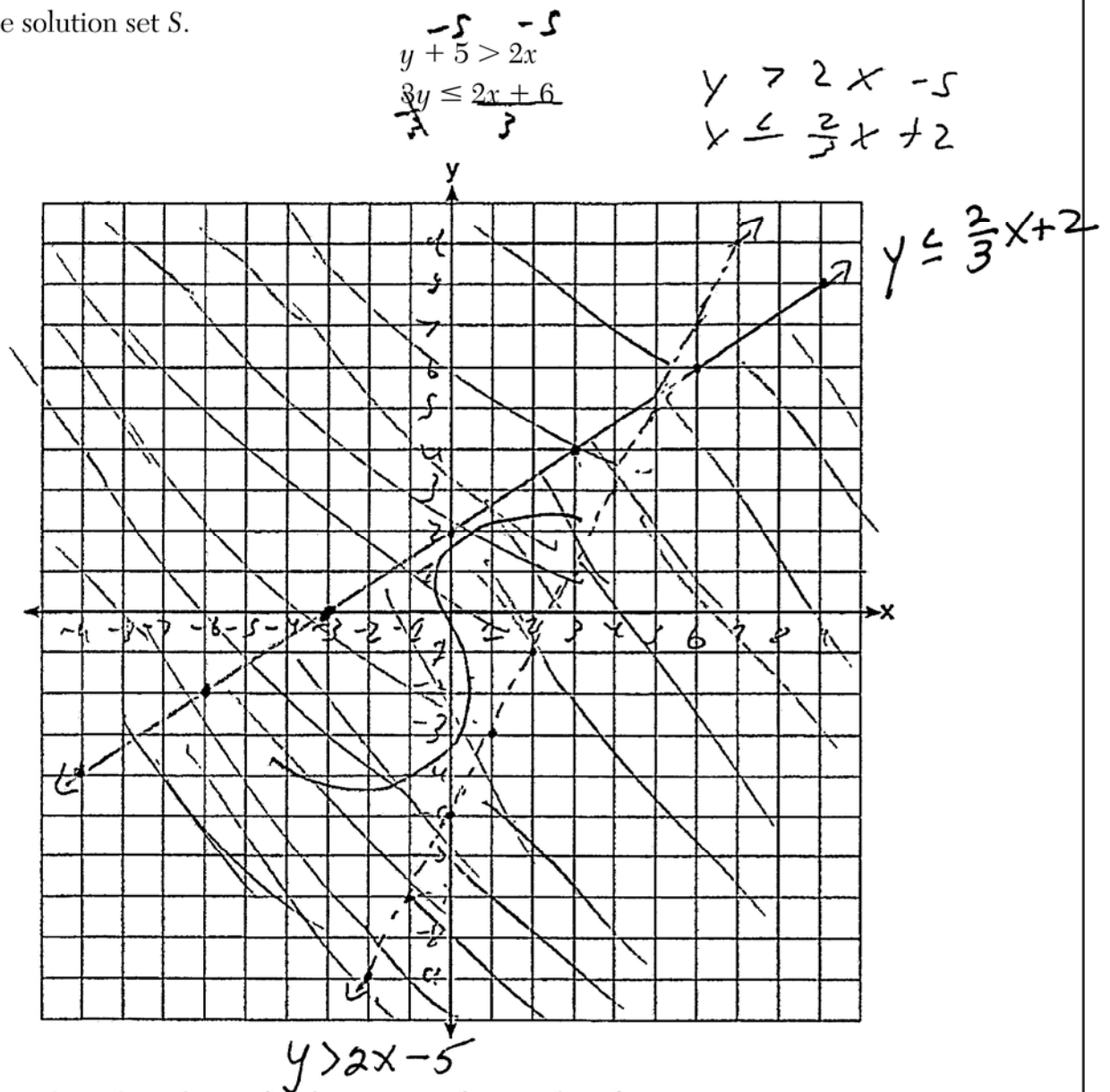
The correlation coefficient is the slope. This shows how much the y value goes up for every x value going up. It shows the line is linear because it goes up by a constant number.

Score 0: The student did not show enough course-level work to receive any credit.

Question 32

32 Solve this system of inequalities graphically, on the set of axes below.

Label the solution set S.



Is the point $(2, -1)$ a solution for this system of inequalities?

Justify your answer.

It is not a solution because it is on the dashed line, meaning it is exclusive.

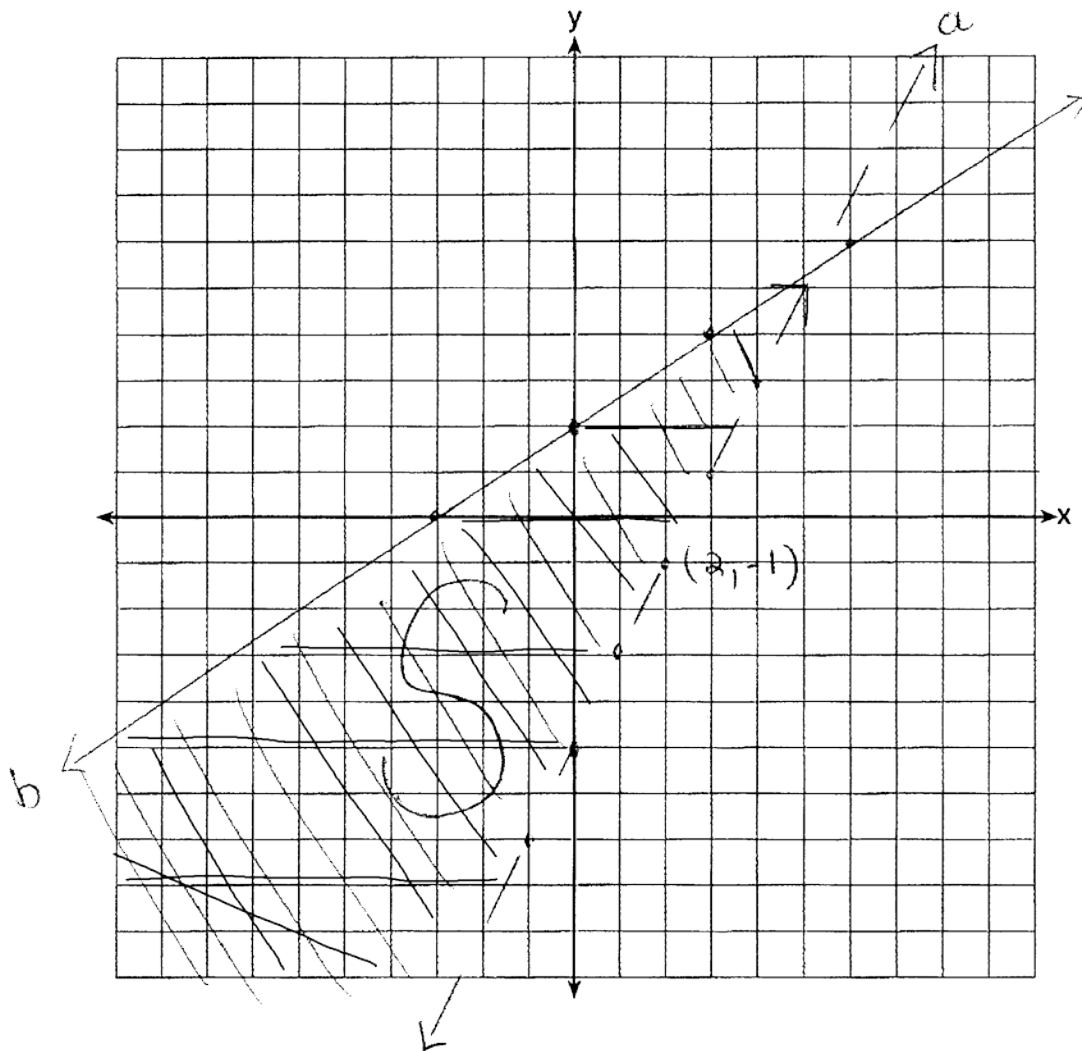
Score 4: The student gave a complete and correct response.

Question 32

32 Solve this system of inequalities graphically, on the set of axes below.

Label the solution set S.

$$y + 5 > 2x \rightarrow y > 2x - 5 \rightarrow a$$
$$3y \leq 2x + 6 \rightarrow y \leq \frac{2}{3}x + 2 \rightarrow b$$



Is the point $(2, -1)$ a solution for this system of inequalities?

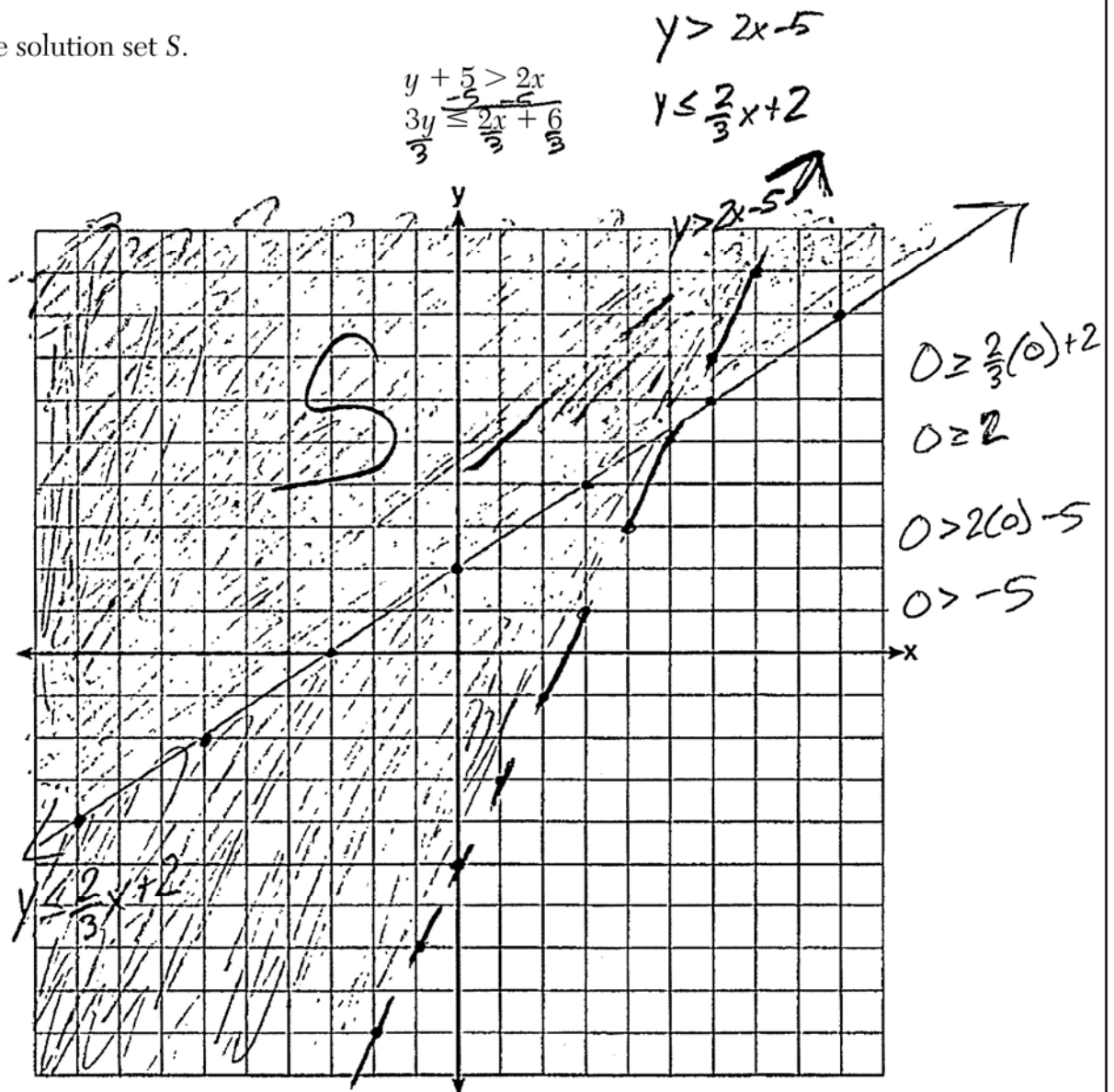
Justify your answer. No, the system of inequalities there is a dotted line meaning not included

Score 4: The student gave a complete and correct response.

Question 32

32 Solve this system of inequalities graphically, on the set of axes below.

Label the solution set S.



Is the point $(2, -1)$ a solution for this system of inequalities?

Justify your answer.

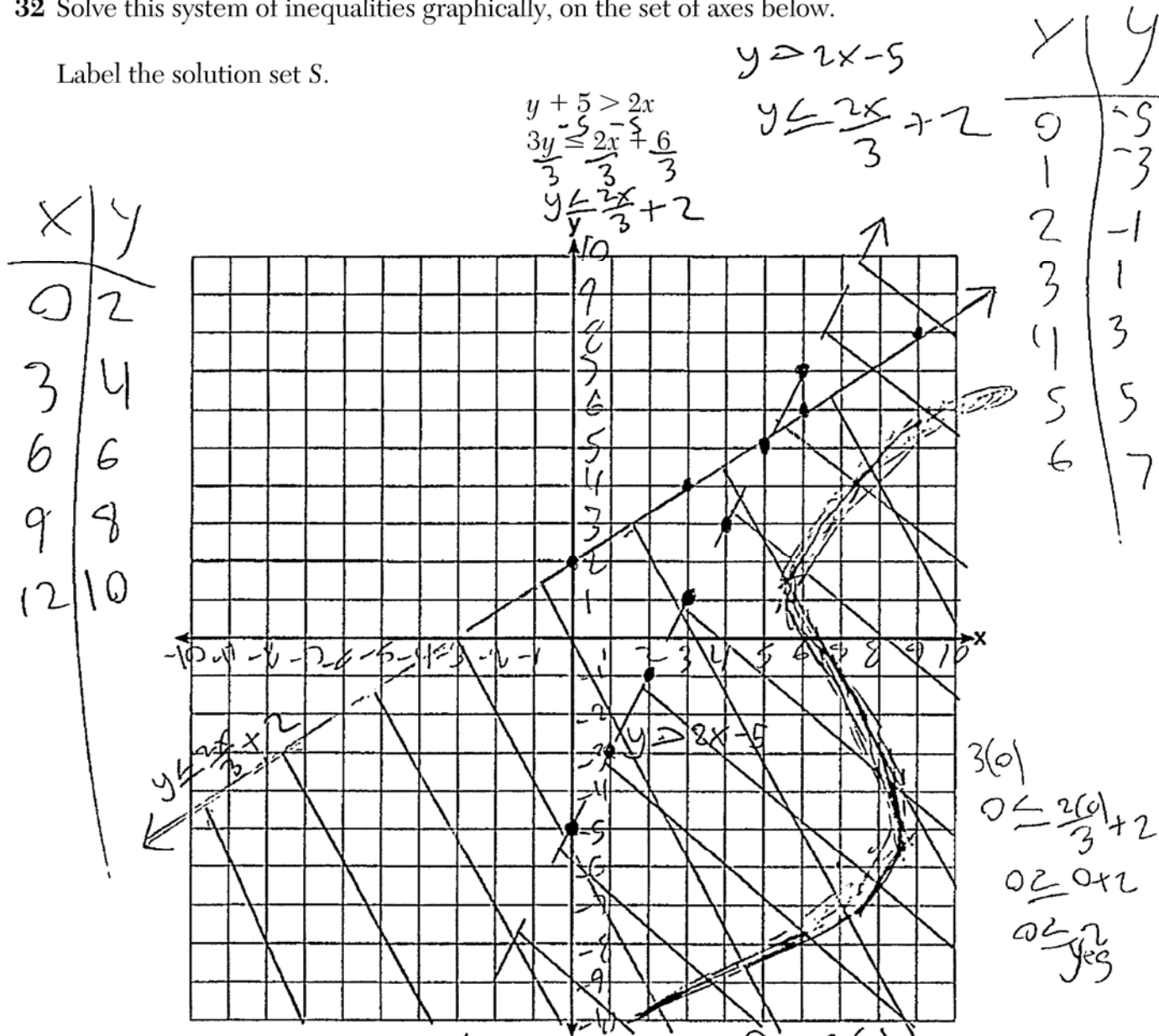
No $(2, -1)$ is not a solution because it is not in the area where both of the inequalities are shaded.

Score 3: The student made one graphing error.

Question 32

32 Solve this system of inequalities graphically, on the set of axes below.

Label the solution set S.

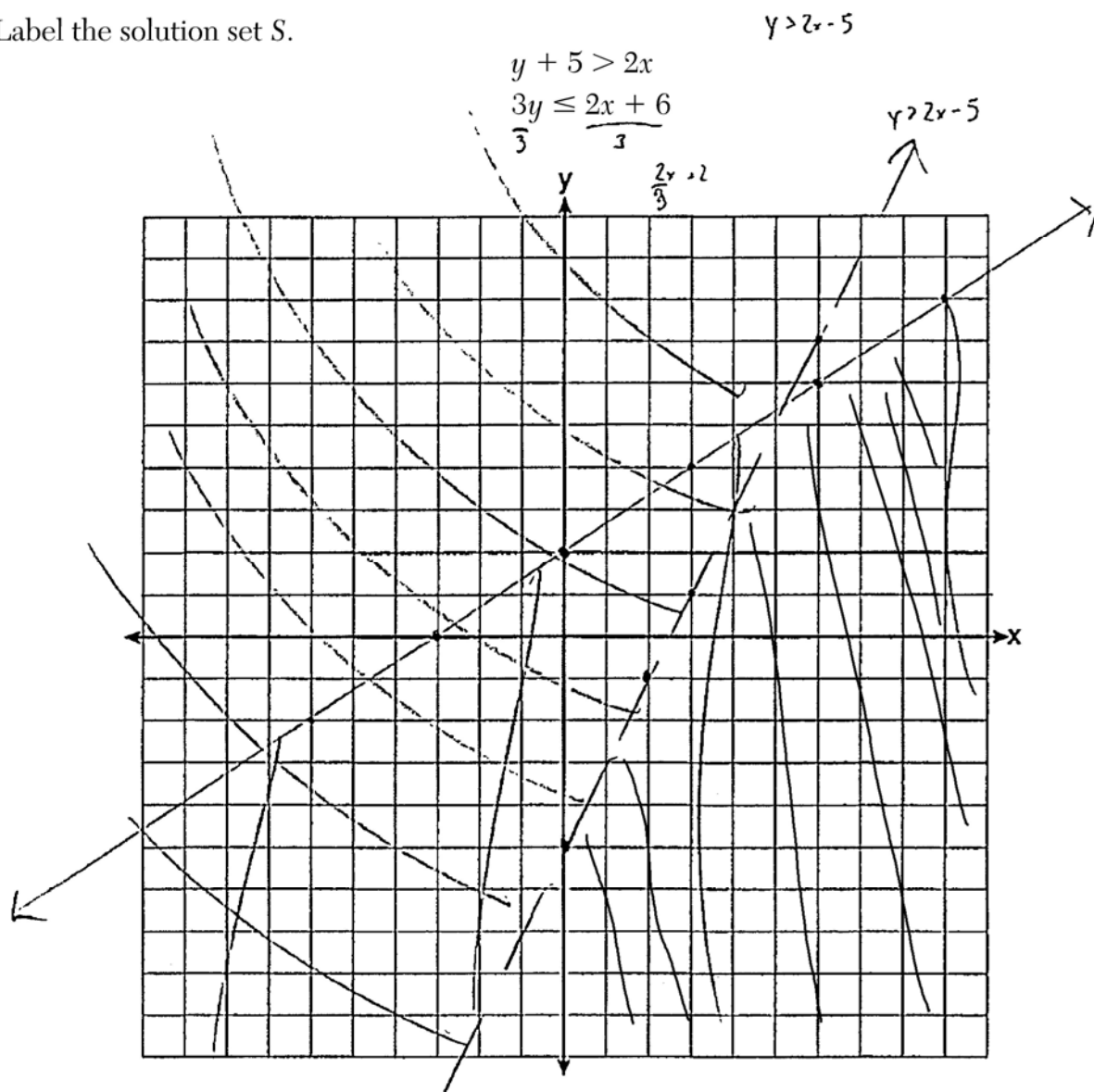


Score 2: The student made one graphing error and gave an incorrect justification.

Question 32

32 Solve this system of inequalities graphically, on the set of axes below.

Label the solution set S.



Is the point $(2, -1)$ a solution for this system of inequalities?

Justify your answer.

Yes, $(2, -1)$ is in the system of inequalities b/c it is in the zones

Score 2: The student did not label S and gave an incorrect justification.

Question 32

32 Solve this system of inequalities graphically, on the set of axes below.

Label the solution set S.

$$3y \leq 2x + 6$$

$$y \leq \frac{2}{3}x + 2$$

-6	-2
-3	0
0	2
3	4
6	6
9	8

$$y + 5 > 2x$$

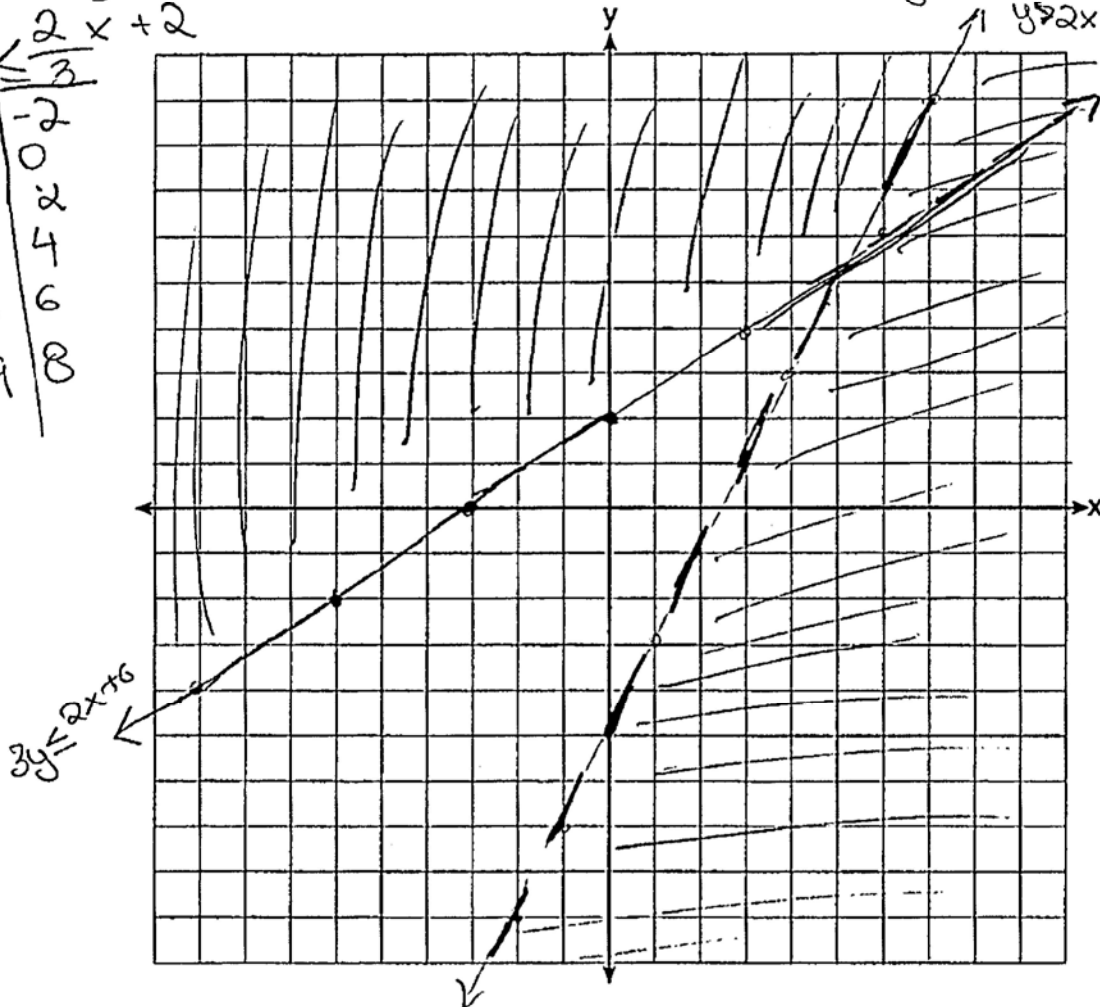
$$3y \leq 2x + 6$$

$$y + 5 > 2x$$

$$-5 \quad -5$$

$$y > 2x - 5$$

$$y + 5 > 2x \text{ or } y > 2x - 5$$



x	y
-2	-9
-1	-7
0	-5
1	-3
2	-1
3	1
4	3
5	5
6	7
7	9

Is the point $(2, -1)$ a solution for this system of inequalities?

Justify your answer.

No, the point $(2, -1)$ is only a solution for the inequality of $y > 2x - 5$ ($y + 5 > 2x$).

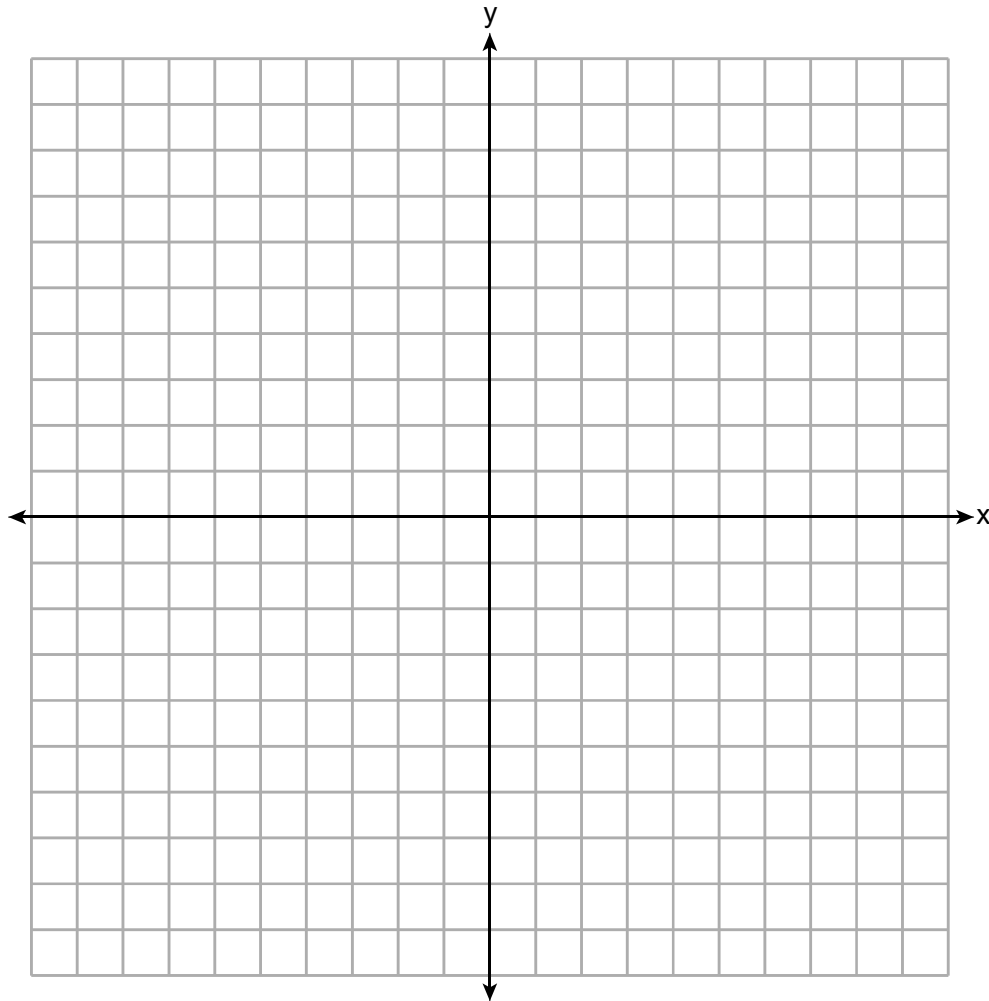
Score 1: The student shaded incorrectly, did not label S, and gave an incorrect justification.

Question 32

32 Solve this system of inequalities graphically, on the set of axes below.

Label the solution set S .

$$\begin{aligned} y + 5 &> 2x \\ 3y &\leq 2x + 6 \end{aligned}$$



Is the point $(2, -1)$ a solution for this system of inequalities?

Justify your answer.

$-1 + 5 > 2(2)$
 $4 > 10$
 $3(-1) \leq 2(2) + 6$
 $-3 \leq 10 \checkmark$

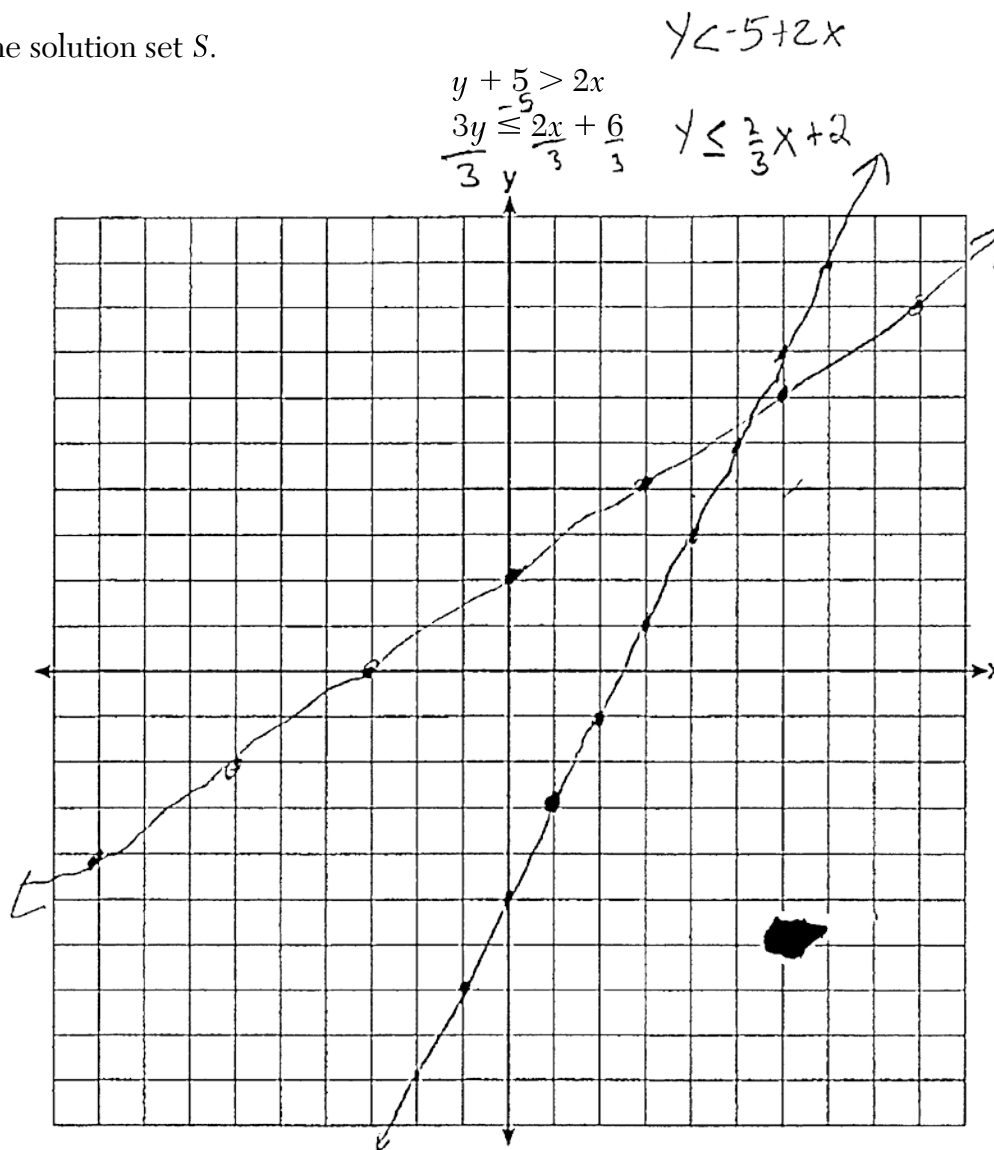
This solution is not correct for this system of inequalities. Although it works for $3y \leq 2x + 6$, it does not for $y + 5 > 2x$, and a solution must work for both inequalities.

Score 1: The student gave a correct justification.

Question 32

32 Solve this system of inequalities graphically, on the set of axes below.

Label the solution set S.



Is the point $(2, -1)$ a solution for this system of inequalities?

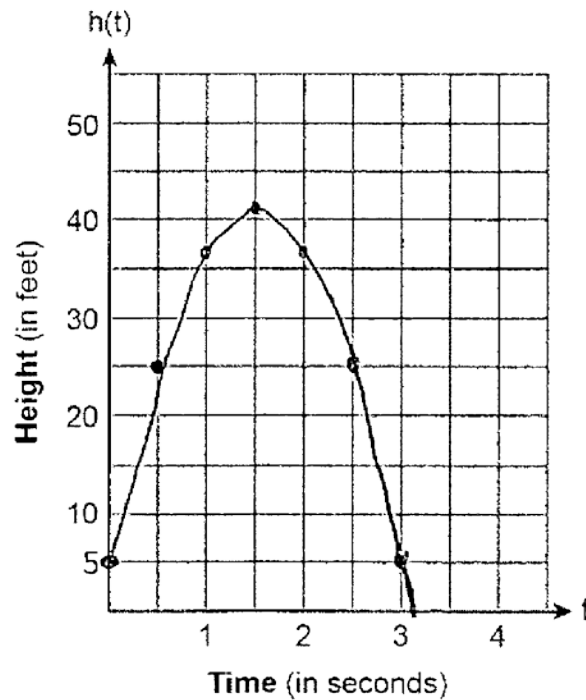
Justify your answer. *Yes it is*

Score 0: The student did not show enough course-level work to receive any credit.

Question 33

- 33** Joey threw a basketball into the air. The height of the basketball can be represented by the equation $h(t) = -16t^2 + 48t + 5$, where h is the height of the ball, in feet, and t is the time, in seconds, after the ball was thrown.

Sketch the graph of the equation on the set of axes below.



State the number of seconds it takes for the ball to reach its maximum height.

1.5

State the maximum height, in feet, the ball reaches.

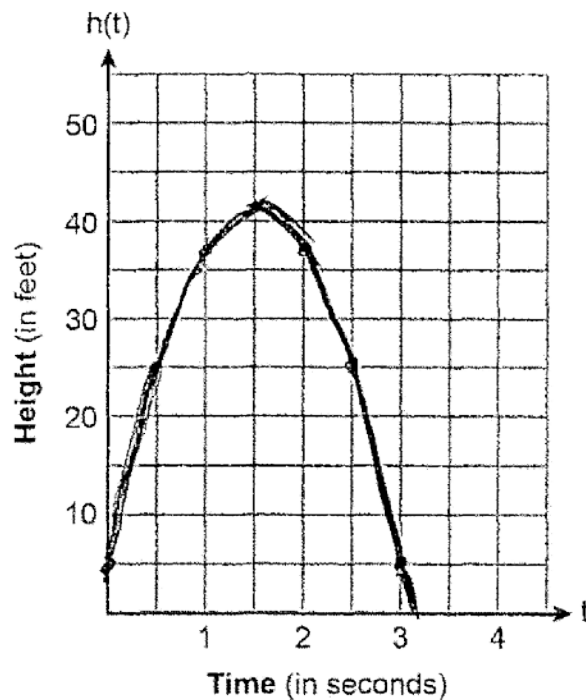
41

Score 4: The student gave a complete and correct response.

Question 33

- 33 Joey threw a basketball into the air. The height of the basketball can be represented by the equation $h(t) = -16t^2 + 48t + 5$, where h is the height of the ball, in feet, and t is the time, in seconds, after the ball was thrown.

Sketch the graph of the equation on the set of axes below.



State the number of seconds it takes for the ball to reach its maximum height.

1.5 seconds to reach its maximum height

State the maximum height, in feet, the ball reaches.

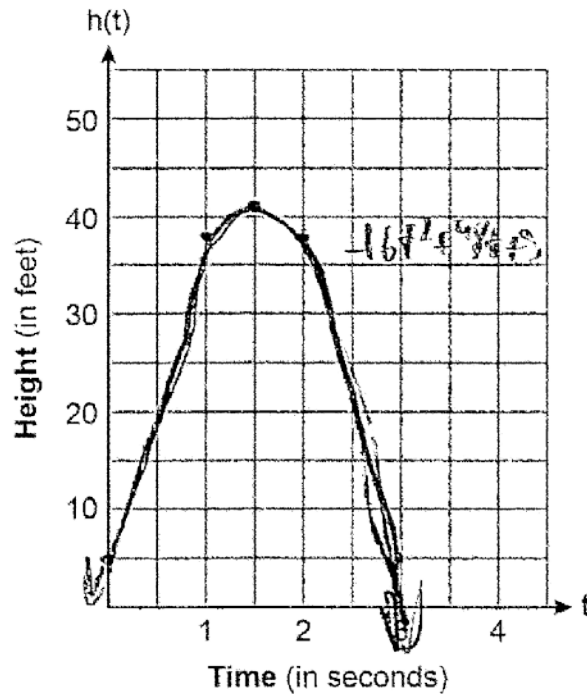
41 feet is the maximum height the ball reaches

Score 4: The student gave a complete and correct response.

Question 33

- 33 Joey threw a basketball into the air. The height of the basketball can be represented by the equation $h(t) = -16t^2 + 48t + 5$, where h is the height of the ball, in feet, and t is the time, in seconds, after the ball was thrown.

Sketch the graph of the equation on the set of axes below.



State the number of seconds it takes for the ball to reach its maximum height.

1.5 seconds

State the maximum height, in feet, the ball reaches.

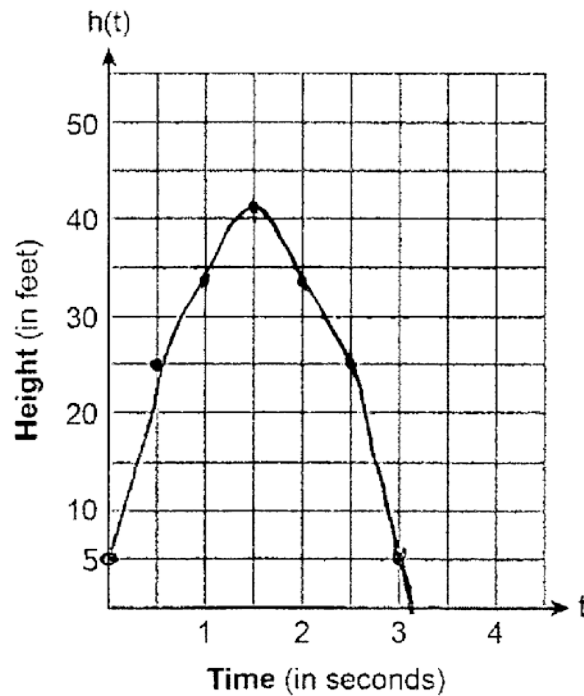
41 ft

Score 3: The student misinterpreted the context by extending the graph beyond the axes.

Question 33

- 33 Joey threw a basketball into the air. The height of the basketball can be represented by the equation $h(t) = -16t^2 + 48t + 5$, where h is the height of the ball, in feet, and t is the time, in seconds, after the ball was thrown.

Sketch the graph of the equation on the set of axes below.



State the number of seconds it takes for the ball to reach its maximum height.

1.5 seconds

State the maximum height, in feet, the ball reaches.

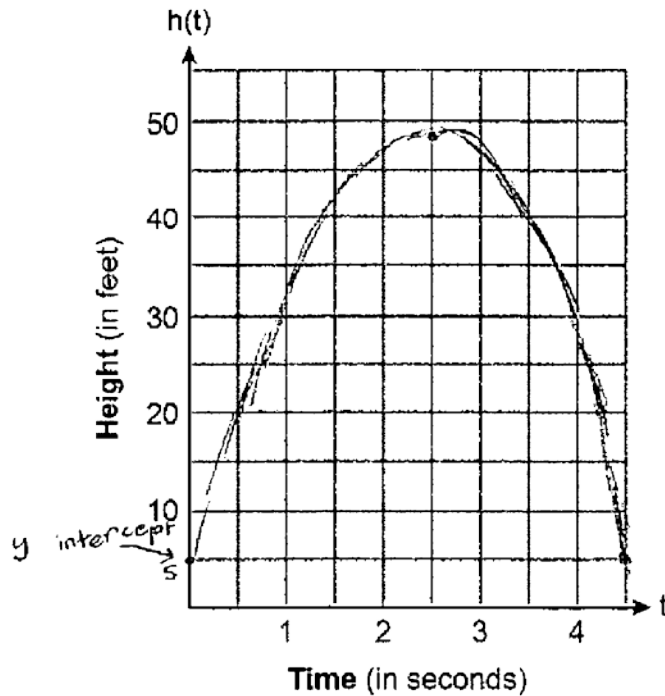
41 feet

Score 3: The student made one graphing error.

Question 33

- 33 Joey threw a basketball into the air. The height of the basketball can be represented by the equation $h(t) = -16t^2 + 48t + 5$, where h is the height of the ball, in feet, and t is the time, in seconds, after the ball was thrown.

Sketch the graph of the equation on the set of axes below.



State the number of seconds it takes for the ball to reach its maximum height.

2.5

State the maximum height, in feet, the ball reaches.

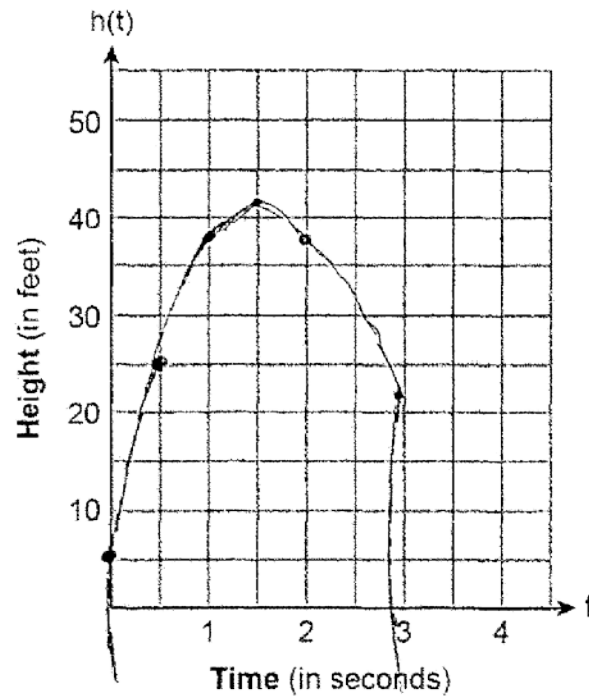
48 feet

Score 2: The student stated the appropriate seconds and feet, based on an incorrect graph.

Question 33

- 33 Joey threw a basketball into the air. The height of the basketball can be represented by the equation $h(t) = -16t^2 + 48t + 5$, where h is the height of the ball, in feet, and t is the time, in seconds, after the ball was thrown.

Sketch the graph of the equation on the set of axes below.



State the number of seconds it takes for the ball to reach its maximum height.

It takes 1.5 seconds for the ball to reach it's maximum height.

State the maximum height, in feet, the ball reaches.

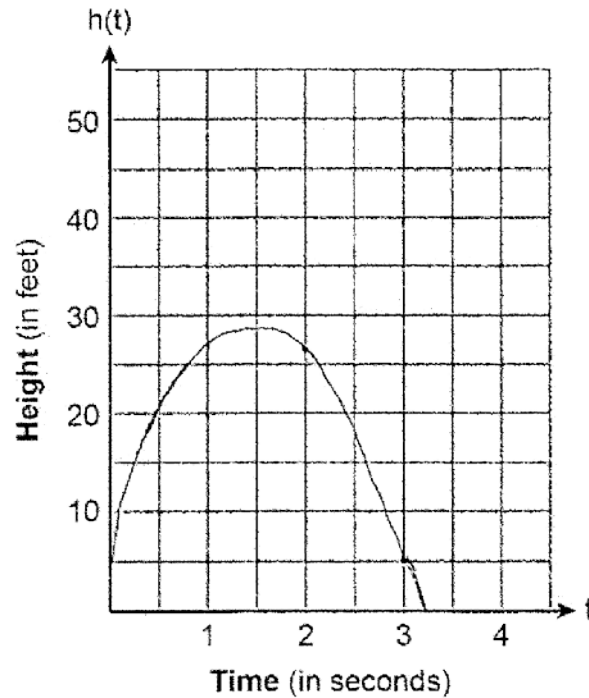
41 feet.

Score 2: The student made multiple graphing errors, but stated 1.5 and 41.

Question 33

- 33 Joey threw a basketball into the air. The height of the basketball can be represented by the equation $h(t) = -16t^2 + 48t + 5$, where h is the height of the ball, in feet, and t is the time, in seconds, after the ball was thrown.

Sketch the graph of the equation on the set of axes below.



State the number of seconds it takes for the ball to reach its maximum height.

1.5 seconds

State the maximum height, in feet, the ball reaches.

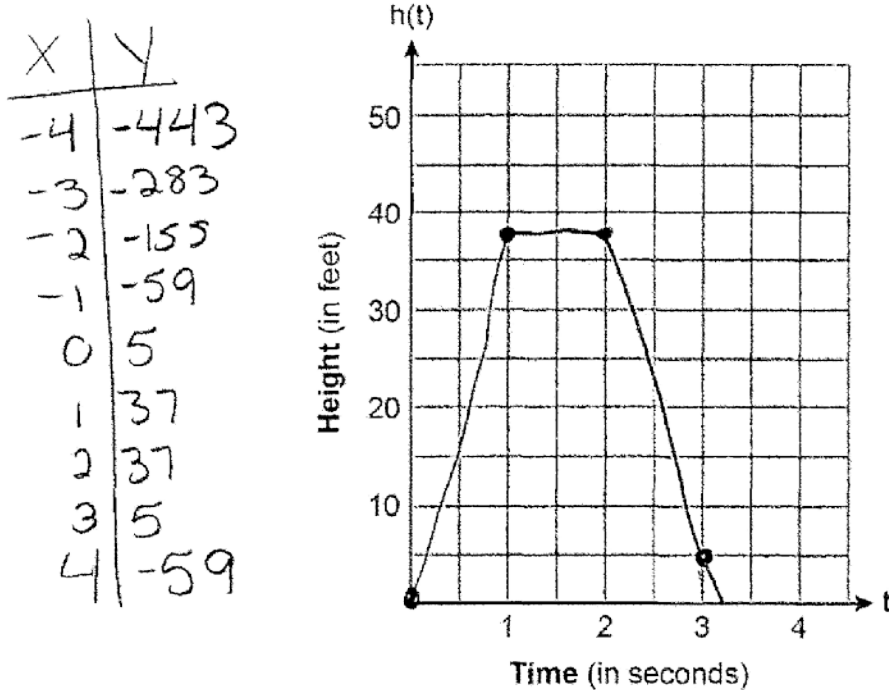
40.85 ft

Score 1: The student stated 1.5.

Question 33

- 33 Joey threw a basketball into the air. The height of the basketball can be represented by the equation $h(t) = -16t^2 + 48t + 5$, where h is the height of the ball, in feet, and t is the time, in seconds, after the ball was thrown.

Sketch the graph of the equation on the set of axes below.



State the number of seconds it takes for the ball to reach its maximum height.

$$\begin{aligned}
 h(t) &= -16t^2 + 48t + 5 \\
 a &= -16 \\
 b &= 48 \\
 x &= \frac{-b}{2(a)} = \frac{-(48)}{2(-16)} = 1.5
 \end{aligned}$$

State the maximum height, in feet, the ball reaches.

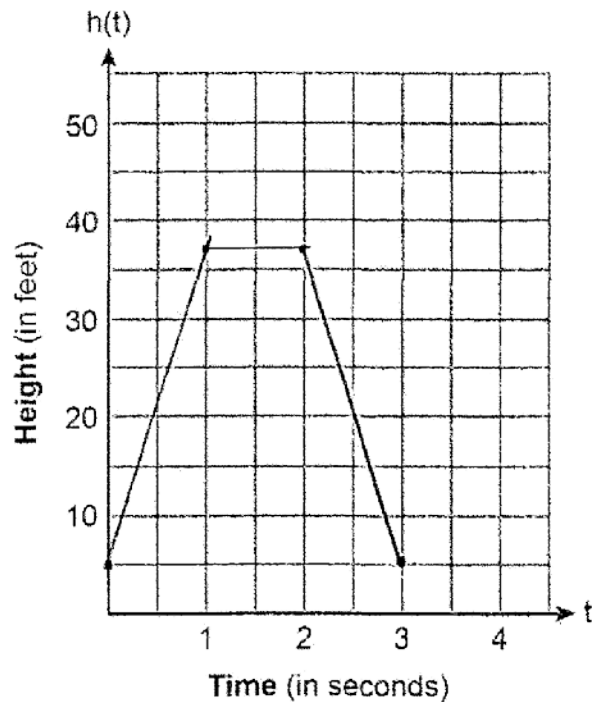
$$1.5 \text{ feet}$$

Score 1: The student correctly stated the number of seconds.

Question 33

- 33** Joey threw a basketball into the air. The height of the basketball can be represented by the equation $h(t) = -16t^2 + 48t + 5$, where h is the height of the ball, in feet, and t is the time, in seconds, after the ball was thrown.

Sketch the graph of the equation on the set of axes below.



State the number of seconds it takes for the ball to reach its maximum height.

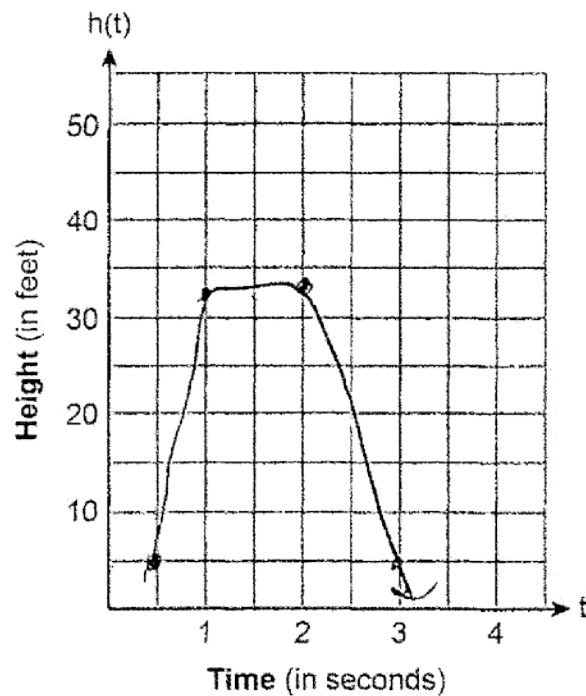
State the maximum height, in feet, the ball reaches.

Score 0: The student made multiple graphing errors.

Question 33

- 33 Joey threw a basketball into the air. The height of the basketball can be represented by the equation $h(t) = -16t^2 + 48t + 5$, where h is the height of the ball, in feet, and t is the time, in seconds, after the ball was thrown.

Sketch the graph of the equation on the set of axes below.



State the number of seconds it takes for the ball to reach its maximum height.

3.7

State the maximum height, in feet, the ball reaches.

the ball reaches 37 ft as it's maximum

Score 0: The student did not show enough course-level work to receive any credit.

Question 34

34 Solve the following system of equations algebraically for all values of x and y :

$$y = x^2 + 4x - 3$$

$$y = 2x + 5$$

$$\begin{array}{r} x^2 + 4x - 3 = 2x + 5 \\ - 2x \quad - 5 \quad - 2x \quad - 5 \\ \hline \end{array}$$

$$x^2 + 2x - 8 = 0$$

$$(x+4)(x-2) = 0$$

$$\begin{array}{l} x+4=0 \\ x=-4 \end{array}$$

$$\begin{array}{l} x-2=0 \\ +2 \quad +2 \\ x=2 \end{array}$$

$$(2, 9)$$

$$(-4, -3)$$

Solve for
 y :

$$\begin{array}{l} y = 2(-4) + 5 \\ y = -3 \end{array}$$

$$\begin{array}{l} y = 2(2) + 5 \\ y = 9 \end{array}$$

Score 4: The student gave a complete and correct response.

Question 34

34 Solve the following system of equations algebraically for all values of x and y :

$$y = x^2 + 4x - 3$$

$$y = 2x + 5$$

$$\begin{array}{r} 2x+5 = x^2+4x-3 \\ -2x-5 \quad -2x-5 \\ \hline x^2+2x-8=0 \end{array} \quad \begin{array}{l} a=1 \\ b=2 \\ c=-8 \end{array}$$

$$x = \frac{-2 \pm \sqrt{2^2 - 4(1)(-8)}}{2(1)}$$

$$x = \frac{-2 \pm 6}{2}$$

$$\frac{-2+6}{2} = \frac{4}{2} = 2 = x$$

$$\frac{-2-6}{2} = \frac{-8}{2} = -4 = x$$

$$2(2)+5 = 9 = y$$

$$2(-4) = -8+5 = -3 = y$$

$$\begin{array}{l} (2, 9) \\ (-4, -3) \end{array}$$

Score 4: The student gave a complete and correct response.

Question 34

34 Solve the following system of equations algebraically for all values of x and y :

$$y = x^2 + 4x - 3$$

$$y = 2x + 5$$

$$\begin{aligned} y &= x^2 + 4x - 3 \rightarrow y - x^2 - 4x = -3 \\ y &= 2x + 5 \rightarrow (y - 2x = 5) \\ y - x^2 - 4x &= -3 \\ -y + 2x &= -5 \\ (-x^2 - 2x &= -8) \end{aligned}$$

$$\begin{aligned} x^2 + 2x &= 8 \\ x &= -4, 2 \end{aligned}$$

$$\begin{aligned} x^2 + 2x &= 8 \\ -8 & -8 \\ x^2 + 2x - 8 &= 0 \\ (x-2)(x+4) & \\ x-2=0 & \quad x+4=0 \\ x=2 & \quad x=-4 \end{aligned}$$

$$\begin{aligned} y &= 2x + 5 & y &= 2x + 5 \\ (-4) & & (2) & \\ y &= -8 + 5 & y &= 4 + 5 \\ y &= -3 & y &= 9 \end{aligned}$$

$$\begin{aligned} x^2 + 2x &= 8 \\ \left(\frac{2}{2}\right)^2 & \\ x^2 + 2x + 1 &= 8 + 1 \\ x^2 + 2x + 1 &= 9 \\ \sqrt{(x+1)^2} &= \sqrt{9} \\ x+1 &= 3 & x+1 &= -3 \\ -1 &= -1 & -1 &= -1 \\ x &= 2 & x &= -4 \end{aligned}$$

$$\boxed{\begin{aligned} x &= -4, 2 \\ y &= -3, 9 \end{aligned}}$$

Score 4: The student gave a complete and correct response.

Question 34

34 Solve the following system of equations algebraically for all values of x and y :

$$y = x^2 + 4x - 3$$

$$y = 2x + 5$$

Handwritten work:

$$2x + 5 = x^2 + 4x - 3$$

$$0 = x^2 + 2x - 8$$

$$0 = (x - 2)(x + 4)$$

$x^2 + 4x - 2x - 8$
 $x^2 + 2x - 8$

$$x - 2 = 0 \quad | \quad x + 4 = 0$$

$$\boxed{x = 2} \quad | \quad \boxed{x = -4}$$

reject

$$y = 2(2) + 5 \quad y = (2)^2 + 4(2) - 3$$

$$\boxed{y = 9} \quad y = 4 + 8 - 3$$

$$y = 12 - 3$$

$$y = 9$$

Score 3: The student only found one solution.

Question 34

34 Solve the following system of equations algebraically for all values of x and y :

$$y = x^2 + 4x - 3$$

$$y = 2x + 5$$

$$y = 2(4) + 5$$

$$y = 2(-2) + 5$$

$$\begin{array}{r} 2x + 5 = x^2 + 4x - 3 \\ \underline{-5} \\ 2x = x^2 + 4x - 8 \end{array}$$

$$\begin{array}{r} 2x = x^2 + 4x - 8 \\ \underline{-2x} \\ -x^2 - 2x - 8 = 0 \end{array}$$

$$x^2 - 2x - 8 = 0$$

$$\begin{array}{l} (x-4)(x+2) \\ \begin{array}{l} x-y=0 \\ -4+4 \end{array} \quad \begin{array}{l} x+y=0 \\ -2-2 \end{array} \\ \boxed{x=4} \quad \boxed{x=-2} \\ \boxed{y=13} \quad \boxed{y=1} \end{array}$$

Score 3: The student made one computational error.

Question 34

34 Solve the following system of equations algebraically for all values of x and y :

$$y = x^2 + 4x - 3$$

$$y = 2x + 5$$

$$\begin{array}{r} 2x+5 = x^2+4x-3 \\ -2x \quad -2x \\ \hline -5 = x^2+2x-3 \\ -5 \quad -5 \\ \hline 0 = x^2+2x-8 \end{array}$$

$$-2+3=1$$

$$-2-3=-5$$

$$2(1)+5=7$$

$$\boxed{\begin{array}{l} y=7 \\ x=1 \end{array}}$$

$$A: 1$$

$$B: -2$$

$$C: -8$$

$$\frac{-(2) \pm \sqrt{2^2 - 4(1)(-8)}}{2(1)}$$

$$\frac{-(2) \pm \sqrt{36}}{2}$$

$$\frac{-(2) \pm 6}{2} \quad \frac{-(2) \pm 3}{2}$$

Score 2: The student made one computational error and only found one solution.

Question 34

34 Solve the following system of equations algebraically for all values of x and y :

$$y = x^2 + 4x - 3$$

$$y = 2x + 5$$

x	y
-4	-3
-3	-6
-2	-7
-1	-6
0	-3
1	2
2	9

x	y
-4	-3
-3	-1
-2	1
-1	3
0	5
1	7
2	9

Score 2: The student used a method other than algebraic to find the correct solutions.

Question 34

34 Solve the following system of equations algebraically for all values of x and y :

$$y = x^2 + 4x - 3$$

$$y = 2x + 5$$

$$\begin{array}{r} 2x+5 = x^2+4x-3 \\ -2x-5 \quad -2x-5 \end{array}$$

$$0 = x^2 + 2x - 8$$

$$(x+4)(x-2) = 0$$

$$x = 4$$

$$x = -2$$

Score 2: The student wrote a correct quadratic equation in factored form.

Question 34

34 Solve the following system of equations algebraically for all values of x and y :

$$y = x^2 + 4x - 3$$

$$y = 2x + 5$$

$$y = x^2 + 4x - 3$$

x	y
0	-3
1	2
2	9
3	18
4	29

$$y = 2x + 5$$

x	y
0	5
1	7
2	9
3	11
4	13

$$y = x^2 + 4x - 3$$

$$9 = (2)^2 + 4(2) - 3$$

$$9 = 9 \checkmark$$

$$y = 2x + 5$$

$$9 = 2(2) + 5$$

$$9 = 9 \checkmark$$

$$x = 2 \text{ + } y = 9$$

Score 1: The student used a method other than algebraic and only found one solution.

Question 34

34 Solve the following system of equations algebraically for all values of x and y :

$$y = x^2 + 4x - 3$$

$$y = 2x + 5$$

$$\begin{array}{r} x^2 + 4x - 3 = 2x + 5 \\ -2x \qquad -2x \\ \hline x^2 + 2x - 3 = 5 \\ \qquad +3 \quad +3 \\ \hline x^2 + 2x = 8 \end{array}$$

$$\begin{array}{r} x^2 + 4x - 3 = 2x + 5 \\ -2x - 5 \quad -2x - 5 \\ \hline x^2 + 2x - 8 = 0 \\ +8 \quad +8 \\ \hline x^2 + 2x = 8 \\ \underbrace{} \\ 4x = 8 \\ \hline 0 \end{array}$$

Score 1: The student wrote a correct quadratic equation in standard form.

Question 34

34 Solve the following system of equations algebraically for all values of x and y :

$$y = x^2 + 4x - 3$$

$$y = 2x + 5$$

$$\begin{array}{r} x^2 + 4x - 3 \neq 2x + 5 \\ -2x - 5 \quad | \quad -2x - 5 \\ \hline \end{array}$$

$$x^2 + 2x - 2 = 0$$

$$(x \quad) (x \quad) = 0$$

$$\begin{array}{r} -2 \\ \cdot \\ + \\ 2 \end{array}$$

Score 0: The student did not show enough course-level work to receive any credit.

Question 34

34 Solve the following system of equations algebraically for all values of x and y :

$$y = x^2 + 4x - 3$$

$$y = 2x + 5$$

$$\begin{array}{r} 2x + 5 = x^2 + 4x - 3 \\ -2x \quad +3 \quad \quad -2x +3 \\ \hline \end{array}$$

$$\frac{8}{2} = x^2 + \frac{2x}{2}$$

$$\sqrt{4} = \sqrt{x^2 + x}$$

$$2 = x + x$$

$$\frac{2}{2} = \frac{2x}{2}$$

$$1 = x$$

$$(1, 7)$$

$$y = 2(1) + 5$$

$$y = 2 + 5$$

$$y = 7$$

Score 0: The student did not show enough course-level work to receive any credit.

Question 35

35 Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

$$\begin{aligned} 6m + 4d &= 20.70 \\ 3m + 6d &= 21.51 \end{aligned}$$

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

$$\begin{aligned} 6m + 4d &= 20.70 \\ 6(2.07) + 4(2.07) &= 20.70 \\ 20.70 &= 20.70 \\ 3m + 6d &= 21.51 \\ 3(2.07) + 6(2.07) &= 21.51 \\ 18.63 &\neq 21.51 \end{aligned}$$

No

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

$$\begin{aligned} 6m + 4d &= 20.70 \\ +2(3m + 6d) &= 21.51 \\ \hline 6m + 4d &= 20.70 \\ + -6m - 12d &= -43.02 \\ \hline -8d &= -22.32 \\ -8 &-8 \\ \hline d &= 2.79 \end{aligned}$$

$$\begin{aligned} 3m + 6d &= 21.51 \\ 3m + 6(2.79) &= 21.51 \\ 3m + 16.74 &= 21.51 \\ -16.74 &-16.74 \\ \hline 3m &= 4.77 \\ \frac{3m}{3} &= \frac{4.77}{3} \\ m &= 1.59 \end{aligned}$$

Check

$$\begin{aligned} 6(1.59) + 4(2.79) &= 20.70 \\ 20.70 &= 20.70 \\ 3(1.59) + 6(2.79) &= 21.51 \\ 21.51 &= 21.51 \end{aligned}$$

doughnut = \$2.79
muffin = \$1.59

Score 6: The student gave a complete and correct response.

Question 35

35 Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

$$6m + 4d = 20.70$$

$$3m + 6d = 21.51$$

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

Miguel is incorrect, by solving the equations to find the cost of

$$\begin{array}{r} -2(3m + 6d = 21.51) \\ -6m - 12d = -43.02 \\ \underline{6m + 4d = 20.70} \\ -8d = -22.32 \\ \underline{-8} \quad \underline{-8} \end{array}$$

$$d = \$2.79$$

$$\begin{array}{r} 6m + 4(2.79) = 20.7 \\ 6m + 11.16 = 20.7 \\ \underline{-11.16} \quad \underline{-11.16} \\ 6m = 9.54 \\ \underline{6} \end{array}$$

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

one muffin and one doughnut,
one muffin = \$1.59
and one doughnut = \$2.79

$$\begin{array}{r} -2(3m + 6d = 21.51) \\ -6m - 12d = -43.02 \\ \underline{6m + 4d = 20.70} \\ -8d = -22.32 \\ \underline{-8} \quad \underline{-8} \end{array}$$

$$m = \$1.59$$

$$d = \$2.79$$

$$6m + 4(2.79) = 20.70$$

$$\begin{array}{r} 6m + 11.16 = 20.70 \\ \underline{-11.16} \quad \underline{-11.16} \\ 6m = 9.54 \\ \underline{6} \end{array}$$

$$m = \$1.59$$

Score 6: The student gave a complete and correct response.

Question 35

35 Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

$$\begin{aligned} 6m + 4d &= 20.70 \\ 3m + 6d &= 21.51 \end{aligned}$$

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

Miguel is incorrect because when you plug $6(2.07) + 4(2.07) = 20.70$
 $20.70 = 20.70$
 in the values for muffins and doughnuts in the 2nd equation, you get $3(2.07) + 6(2.07) = 21.51$
 $18.63 \neq 21.51$ which is false.

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

$$\begin{aligned} 6m + 4d &= 20.70 \\ -2(3m + 6d &= 21.51) \\ \hline -6m - 12d &= -43.02 \\ 6m + 4d &= 20.70 \\ \hline -8d &= -22.32 \\ -8 & \\ \hline d &= 2.79 \end{aligned}$$

$$\begin{aligned} 6m + 4(2.79) &= 20.70 \\ 6m + 11.16 &= 20.70 \\ -11.16 & \quad -11.16 \\ \hline 6m &= 9.60 \\ 6 & \\ \hline m &= 1.60 \end{aligned}$$

$$\begin{aligned} d &= 2.79 \\ m &= 1.60 \end{aligned}$$

Score 5: The student made a transcription error, using 20.76, in finding the cost of a muffin.

Question 35

- 35** Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

$$\begin{cases} 6m + 4d = 20.70 \\ 3m + 6d = 21.51 \end{cases}$$

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

$$\begin{aligned} 6m + 4d &= 20.70 \\ 6(2.07) + 4(2.07) &= 20.70 \\ 12.42 + 8.28 &= 20.70 \\ 20.70 &= 20.70 \end{aligned}$$

Miguel is correct because when you plug in 2.07 for the variables in the equation $6m + 4d = 20.70$, you would get 20.70 in the end. It is a true equation.

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

$$\begin{cases} 6m + 4d = 20.70 \\ -2(3m + 6d = 21.51) \end{cases}$$

$$\begin{aligned} &\begin{cases} 6m + 4d = 20.70 \\ + \quad -6m - 12d = -43.02 \end{cases} \\ &\hline &-8d = -22.32 \\ &\frac{-8d}{-8} = \frac{-22.32}{-8} \\ &\boxed{d = 2.79} \end{aligned}$$

$$\begin{aligned} 6m + 4d &= 20.70 \\ 6m + 4(2.79) &= 20.70 \\ 6m + 11.16 &= 20.70 \\ 6m &= 9.54 \\ \frac{6m}{6} &= \frac{9.54}{6} \\ \boxed{m = 1.59} \end{aligned}$$

One muffin costs \$1.59 and one doughnut costs \$2.79.

Score 5: The student gave an incomplete justification.

Question 35

35 Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

$$\begin{cases} 6m + 4d = 20.70 \\ 3m + 6d = 21.51 \end{cases}$$

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

Miguel is wrong because on Monday he bought 10 items and on Tuesday he bought 9 but the food was more expensive on Tuesday if they all cost the same then he would have spent more on Monday.

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

Score 4: The student wrote a correct system of equations and a correct justification.

Question 35

35 Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

$$\begin{aligned} 6m + 4d &= 20.70 \\ 3m + 6d &= 21.51 \end{aligned}$$

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

Miguel isn't correct it is actually \$2.88. Why?

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

m = How much
each Muffin is
 d = How much each
donut is

$$\begin{aligned} 6m + 4d &= 20.70 \\ -2(3m + 6d &= 21.51) -2 \\ \hline 6m + 4d &= 20.70 \\ -6m - 12d &= -43.02 \\ \hline -8d &= -22.32 \\ -8 &-8 \\ \hline d &= 2.8775 \rightarrow \$2.88 \end{aligned}$$

Score 4: The student wrote a correct system of equations and gave an appropriate justification based on incorrect work.

Question 35

35 Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

$$6m + 4d = \$20.70 \quad | \quad 3m + 6d = \$21.51$$

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

Miguel is correct

$$\begin{array}{r} 6(2.07) = 12.42 \\ 4(2.07) = 8.28 \\ \hline 20.70 \end{array}$$

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

$$3m + 6d = \$21.51$$

$$\begin{array}{r} 6m + 4d = 20.70 \\ -4d \quad -4d \\ \hline 6m = -4d + 20.70 \\ 6m = -4(2.07) + 20.70 \\ 6m = -8.28 + 20.78 \\ 6m = 12.5 \\ \hline 6 \quad 6 \\ m = 2.08 \end{array}$$

Score 3: The student wrote a correct system of equations, but an incomplete justification.

Question 35

- 35** Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

$$\begin{array}{l} \frac{9.1}{6} = 1.59 \\ \left. \begin{array}{l} 6m + 4d = 20.70 \\ 3m + 6d = 21.51 \end{array} \right\} \\ \begin{array}{r} 6m + 11.6 = 20.70 \\ \underline{11.6} \\ 9.1 \end{array} \end{array}$$

$$\begin{array}{r} 6m + 4d = 20.70 \\ -6m - 12d = -43.02 \\ \hline -8d = -22.32 \\ d = 2.79 \end{array}$$

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

A doughnut is \$2.79 and a muffin is \$1.59

$$\begin{array}{l} 6m + 4d = 20.70 \\ -6m - 12d = -43.02 \\ \hline -8d = -22.32 \\ d = 2.79 \end{array}$$

$$\frac{9.1}{6} = 1.59$$

$$\begin{array}{r} 6m + 11.6 = 20.70 \\ \underline{-11.6} \\ 6m = 9.1 \\ \hline 6 \end{array}$$

Score 3: The student wrote a correct system of equations and solved it correctly for d .

Question 35

35 Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

$$\begin{aligned} m \times 6 + d \times 4 &= \$20.70 \\ m \times 3 + d \times 6 &= \$21.51 \end{aligned}$$

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

no because $m = \text{muffin}$ $d = \text{doughnut}$

$$\begin{aligned} m &= 2.07 & d &= 2.07 & \text{no} \\ 2.07 \times 6 &= 12.42 & 2.07 \times 3 &= 6.21 \\ 2.07 \times 4 &= 8.28 & 2.07 \times 6 &= 12.42 \\ 12.42 + 8.28 &= 20.7 & 6.21 + 12.42 &= 18.63 \end{aligned}$$

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

Score 3: The student wrote one correct equation and a correct justification.

Question 35

35 Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

$$\begin{aligned} m + d &= \$20.71 \\ m + d &= \$21.51 \end{aligned}$$

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

$$\begin{aligned} \$2.07 \times 3 &= \$6.21 \\ \$2.07 \times 6 &= \$12.42 \end{aligned}$$

$$\begin{array}{r} \$12.42 \\ + \$6.21 \\ \hline \$18.63 \end{array}$$

$$\begin{array}{r} \$21.51 \\ - \$18.63 \\ \hline \$2.88 \end{array}$$

Miguel is wrong because he's \$2.88 off.

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

$$\begin{aligned} \$20.71 \div 2 &= \$10.35 \\ \$10.35 \div 6 &= \$1.72 \\ \$10.35 \div 4 &= \$2.58 \\ \text{muffins} &= \$1.72 \\ \text{doughnuts} &= \$2.58 \end{aligned}$$

Score 2: The student gave a correct justification.

Question 35

35 Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

Handwritten notes and equations:

- 6 muffins
4 doughnuts $\rightarrow$ \$20.70
- $2.07 \times 10 = 20.70$
- $3m + 6d = 21.51$

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

I disagree because the second day he bought 3 muffins and 6 doughnuts and it was more money so basically doughnuts are more expensive than muffins.

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

Handwritten solutions:

- 1 doughnut = 2.39
- 1 muffin = 2.07

Score 2: The student gave a correct justification.

Question 35

35 Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

$$y + 10 = 20.70$$

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

yes because if he buy 10 in total for 20,70 \$
When we divide the total by 10 (muffin and Donuts)
We found that each of them cost 2,07
$$\frac{20,70}{10} = 2,07 \$$$

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

$$y + \frac{10}{10} = \frac{20,70}{10}$$
$$y = 2,07$$

Score 1: The student gave an incomplete justification.

Question 35

35 Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

He is incorrect because the doughnut costs more than the muffin.

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

Score 0: The student did not show enough course-level work to receive any credit.

Question 35

35 Miguel is in charge of buying snacks for his office's morning meetings. On Monday, he buys six muffins and four doughnuts for \$20.70. On Tuesday, at the same store, he buys three muffins and six doughnuts for \$21.51. There is no sales tax.

If m represents the cost of one muffin and d represents the cost of one doughnut, write a system of equations to represent this situation.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Miguel thinks one muffin costs \$2.07 and one doughnut also costs \$2.07. Is Miguel correct? Justify your answer.

yes Miguel is correct because it includes tax but he bought less muffins on tuesday

Use your system of equations to algebraically determine the exact price of one muffin and the exact price of one doughnut.

$$6 \quad 4 \quad 20.70 \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$3 \quad 6 \quad 21.51 \quad x = \frac{-6 \pm \sqrt{6^2 - 4(4)(20.70)}}{2(4)}$$

$$x = \frac{-41.4}{6}$$

$$x = -6.9$$

Score 0: The student did not show enough course-level work to receive any credit.

Regents Examination in Algebra I – AUGUST 2026**Chart for Converting Total Test Raw Scores to Final Exam Scores (Scale Scores)**

(Use for the August 2026 exam only.)

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

To determine the student's final examination score (scale 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.

Schools are not permitted to rescore any of the open-ended 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.

Because scale scores corresponding to raw scores in the conversion chart 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 chart above is usable only for this administration of the Regents Examination in Algebra I.