ALGEBRA

I

ALGEBRA I

Wednesday, June 18, 2025 — 1:15 to 4:15 p.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 expression $\dfrac{10}{\sqrt{2}}$ is equivalent to

(1) 5   (3) $5\sqrt{2}$

(2) 20   (4) $10\sqrt{2}$

2 A parabola is graphed on the set of axes below.

Over which interval is the parabola only increasing?

(1) $[1,4]$ (3) $(-\infty,3]$

(2) $[3,\infty)$ (4) $[-1,1]$

3 Which scenario represents an exponential relationship?

(1) Kirsten's New Year's resolution is to lose one pound each week.

(2) Sarah wants to increase her grade by 5 points each quarter.

(3) Tommy wants to reduce his spending by $50 each month.

(4) Dylan hopes to grow his business by 5% each month.

4 The geometry test scores for Andrea and Joe are shown in the table below.

Andrea	Joe
82	91
87	78
90	94
84	67

Which statement about their test scores is correct?

(1) Both the mean and standard deviation of Andrea's test scores are higher than Joe's.

(2) Both the mean and standard deviation of Joe's test scores are higher than Andrea's.

(3) The mean of Andrea's test scores is higher than Joe's, but Joe's standard deviation is higher than Andrea's.

(4) The mean of Joe's test scores is higher than Andrea's, but Andrea's standard deviation is higher than Joe's.

5 Which polynomial has a degree of 3 and a leading coefficient of 2?

(1) $2x^2 + 3x + 1$ (3) $3x^2 + 2x + 2$

(2) $6x^3 + 3x^2 - 2x$ (4) $2x^3 + x^2 + 4x$

6 The expression $(-3x^2 + 9) - (7x^2 - 5x + 4)$ is equivalent to

(1) $-10x^2 + 5x + 5$ (3) $-10x^2 - 5x + 5$

(2) $-10x^2 + 5x + 13$ (4) $-10x^2 - 5x + 13$

7 The function $h(x)$ is used to calculate the average height, in inches, of a tomato plant x weeks after it is transplanted. These data are represented in the table below.

x	h(x)
2	6
4	12
6	24
9	51
12	60
16	64

Between weeks 4 and 12, the average rate of change, in inches per week, is

(1) 6   (3) 48

(2) 8   (4) 58

8 Chloe is solving the equation $x^2 + 5x = 3x + 3$. Her first step is shown below.

$$\text{Given:} \quad x^2 + 5x = 3x + 3$$
$$\text{Step 1:} \quad x^2 + 2x - 3 = 0$$

Which property justifies this step?

(1) the zero product property

(2) the commutative property

(3) the distributive property

(4) the subtraction property of equality

9 Which function represents the graph of $w(x) = |x|$ shifted 2 units to the right?

(1) $g(x) = |x + 2|$ (3) $q(x) = |x| + 2$

(2) $h(x) = |x - 2|$ (4) $r(x) = |x| - 2$

10 Given the system of equations:

$$y + 4x = 5$$
$$2x - 3y = 10$$

A step in solving this system by using the substitution method would be

(1) $2(5 - 4x) + 4x = 5$ (3) $2x - 3(5 - 4x) = 10$

(2) $2(5 + 4x) + 4x = 5$ (4) $2x - 3(5 + 4x) = 10$

11 Which equation is equivalent to $x^2 - 6x = 27$?

(1) $(x - 3)^2 = 27 - 9$ (3) $(x - 3)^2 = 27 + 36$

(2) $(x - 3)^2 = 27 + 9$ (4) $(x - 3)^2 = 27 - 36$

12 The box plots below summarize the ages of athletes on the swim team and the track team.

Swim Team
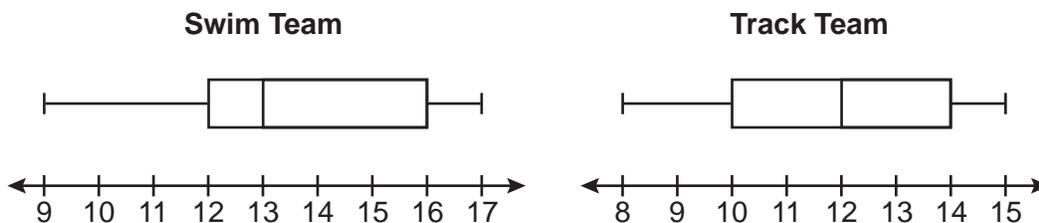
Track Team

Based on the box plots, which statement must be true?

(1) The IQR of both teams is the same.

(2) There are more athletes on the swim team than on the track team.

(3) The median age of the swim team is less than the median age of the track team.

(4) The range of ages of the swim team is smaller than the range of ages of the track team.

13 The graph of $f(x)$ is shown below.

The domain of this function is

(1) $[0,12]$ (3) $0 < x \leq 12$

(2) $[15,45]$ (4) $15 < x \leq 45$

14 The sum of 3 and $\sqrt{5}$ is

(1) rational, since the sum can be expressed as an integer

(2) rational, since the sum can be expressed as a nonterminating decimal

(3) irrational, since the sum can be expressed as a terminating decimal

(4) irrational, since the sum cannot be expressed as a terminating or repeating decimal

15 Which expression is equivalent to $a^8 - b^6$?

(1) $(a^4 - b^3)^2$ (3) $(a^4)^2 - (b^3)^2$

(2) $(a^6 - b^4)^2$ (4) $(a^6)^2 - (b^4)^2$

16 The sum of $2\sqrt{27}$ and $4\sqrt{12}$ is

(1) $14\sqrt{3}$ (3) $6\sqrt{39}$

(2) $34\sqrt{3}$ (4) $8\sqrt{39}$

17 The sum of Tim's age and Jack's age is 44. Tim's age is 4 less than 7 times Jack's age, x. An equation that could be used to model this scenario is

(1) $(7x - 4) + x = 44$

(3) $7x - 4 = 44$

(2) $(4 - 7x) + x = 44$

(4) $4 - 7x = 44$

18 Given the function $g(x) = \dfrac{2^{x+3}}{x^2 - 2}$, what is the value of $g(-2)$?

(1) 1

(3) -1

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

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

19 Four graphs are shown below.
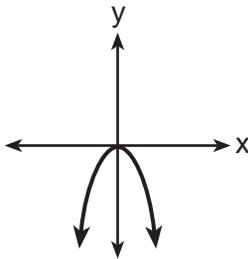
A
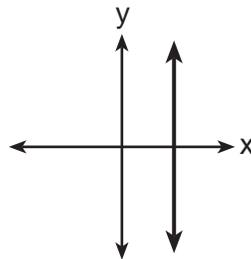
C
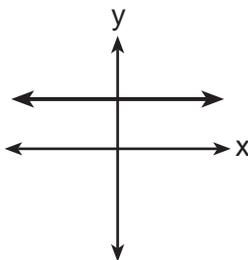
B
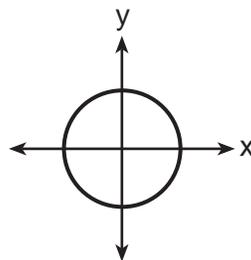
D

Which of the graphs represent(s) a function?

(1) A, only

(3) A, B, and C, only

(2) A and B, only

(4) A, B, C, and D

20 The formula to calculate kinetic energy is $K = \frac{1}{2}mv^2$, where K is kinetic energy, m is mass, and v is velocity. When m is written in terms of K and v, the equation is

(1) $m = \frac{2K}{v^2}$

(3) $m = \sqrt{2Kv^2}$

(2) $m = 2Kv^2$

(4) $m = \frac{K}{2v^2}$

21 The solution to the equation $\frac{2(3x-1)}{3} = x + 2$ is

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

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

(2) $\frac{2}{3}$

(4) $\frac{8}{3}$

22 Which equation represents the sequence 12, 6, 3, $\frac{3}{2}$,…, where $a_1 = 12$?

(1) $a_n = 12 \bullet \left(\frac{1}{2}\right)^{n-1}$

(3) $a_n = 12 \bullet (2)^{n-1}$

(2) $a_n = 12 \bullet \left(\frac{1}{2}\right)^{n}$

(4) $a_n = 12 \bullet (2)^{n}$

23 The axis of symmetry is $x = 2$ for which quadratic function?

f(x)
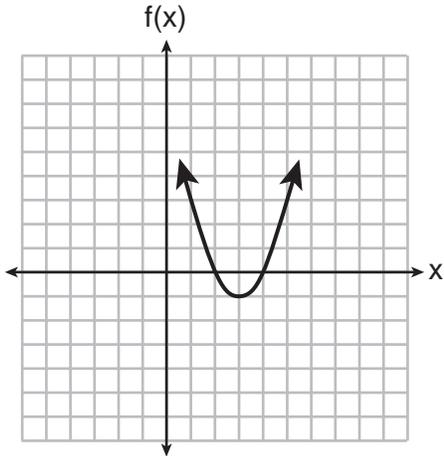
(1)

x	g(x)
−2	6
−1	3
0	2
1	3
2	6

(3)

$$j(x) = 2x^2 + 8x$$

(2)

$$h(x) = x^2 - 4x - 5$$

(4)

24 Each day, a freight train passes by Anna's house. This freight train travels at 49 miles per hour. Each railroad car is 56 feet long. Which expression represents the number of railroad cars that pass by Anna's house per minute?

(1) $\dfrac{49 \text{ mi}}{1 \text{ hr}} \bullet \dfrac{1 \text{ mi}}{5280 \text{ ft}} \bullet \dfrac{1 \text{ hr}}{60 \text{ min}} \bullet \dfrac{1 \text{ car}}{56 \text{ ft}}$

(2) $\dfrac{49 \text{ mi}}{1 \text{ hr}} \bullet \dfrac{1 \text{ mi}}{5280 \text{ ft}} \bullet \dfrac{60 \text{ min}}{1 \text{ hr}} \bullet \dfrac{1 \text{ car}}{56 \text{ ft}}$

(3) $\dfrac{49 \text{ mi}}{1 \text{ hr}} \bullet \dfrac{5280 \text{ ft}}{1 \text{ mi}} \bullet \dfrac{1 \text{ hr}}{60 \text{ min}} \bullet \dfrac{1 \text{ car}}{56 \text{ ft}}$

(4) $\dfrac{49 \text{ mi}}{1 \text{ hr}} \bullet \dfrac{5280 \text{ ft}}{1 \text{ mi}} \bullet \dfrac{60 \text{ min}}{1 \text{ hr}} \bullet \dfrac{1 \text{ car}}{56 \text{ ft}}$

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 was taken to determine whether students preferred to watch videos or listen to music. Of the 100 students surveyed, 44 were seniors. Of the 65 students who preferred to watch videos, 42 were juniors. Use this information to complete the frequency table below.

	Juniors	Seniors	Total
Watch Videos			
Listen to Music			
Total			

26 Solve the inequality for y:

$$5(2 - y) > -11y - 8$$

27 Express $(5x - 3)(-2x + 7)$ as a trinomial in standard form.

28 The first and fourth terms in an arithmetic sequence are given below.

$$-20, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, -2$$

Determine the eighth term.

29 Write an equation in slope-intercept form for the line that passes through $(-2,5)$ and has a slope of -3. [Use of the set of axes below is optional.]
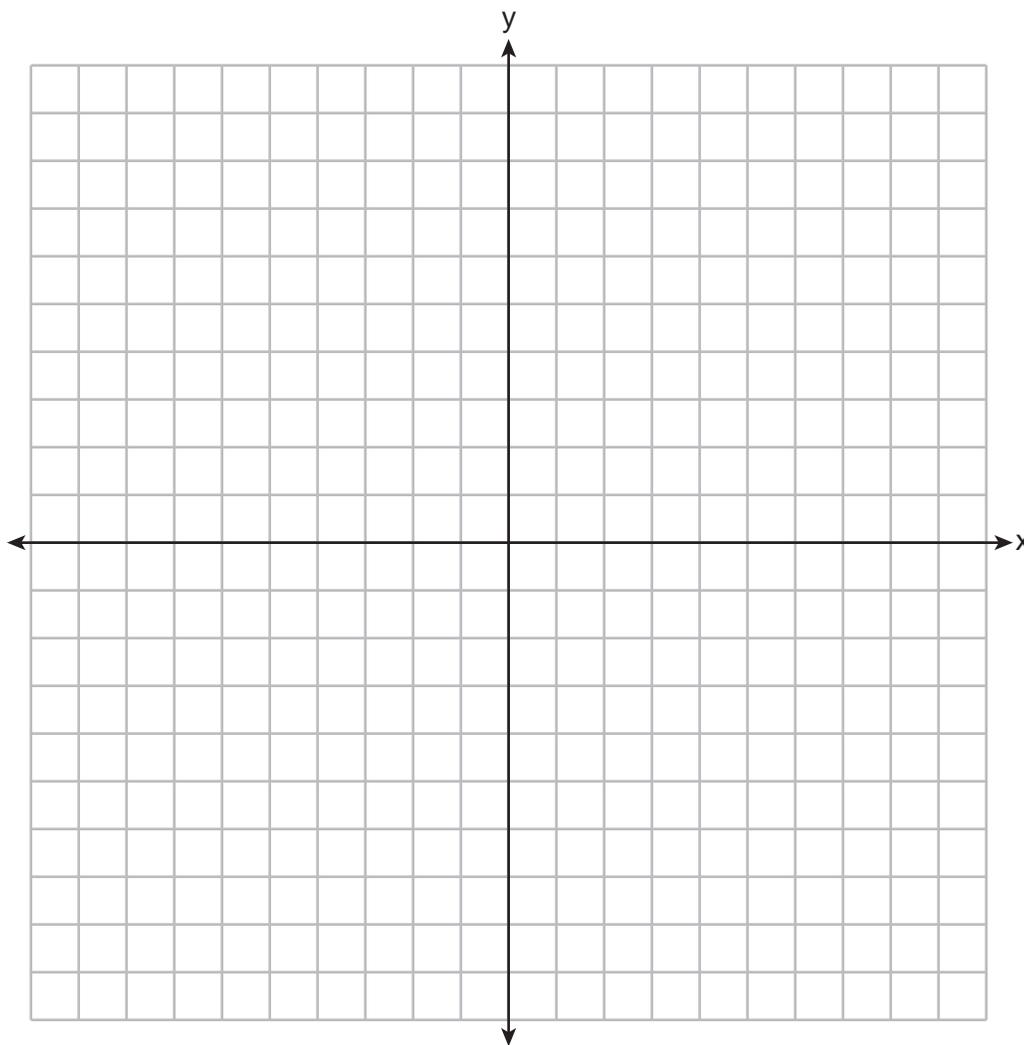
**30** Factor the expression $x^3 - 36x$ completely.

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 Graph $f(x) = -3x$ and $g(x) = x^2 + 2$ on the set of axes below.
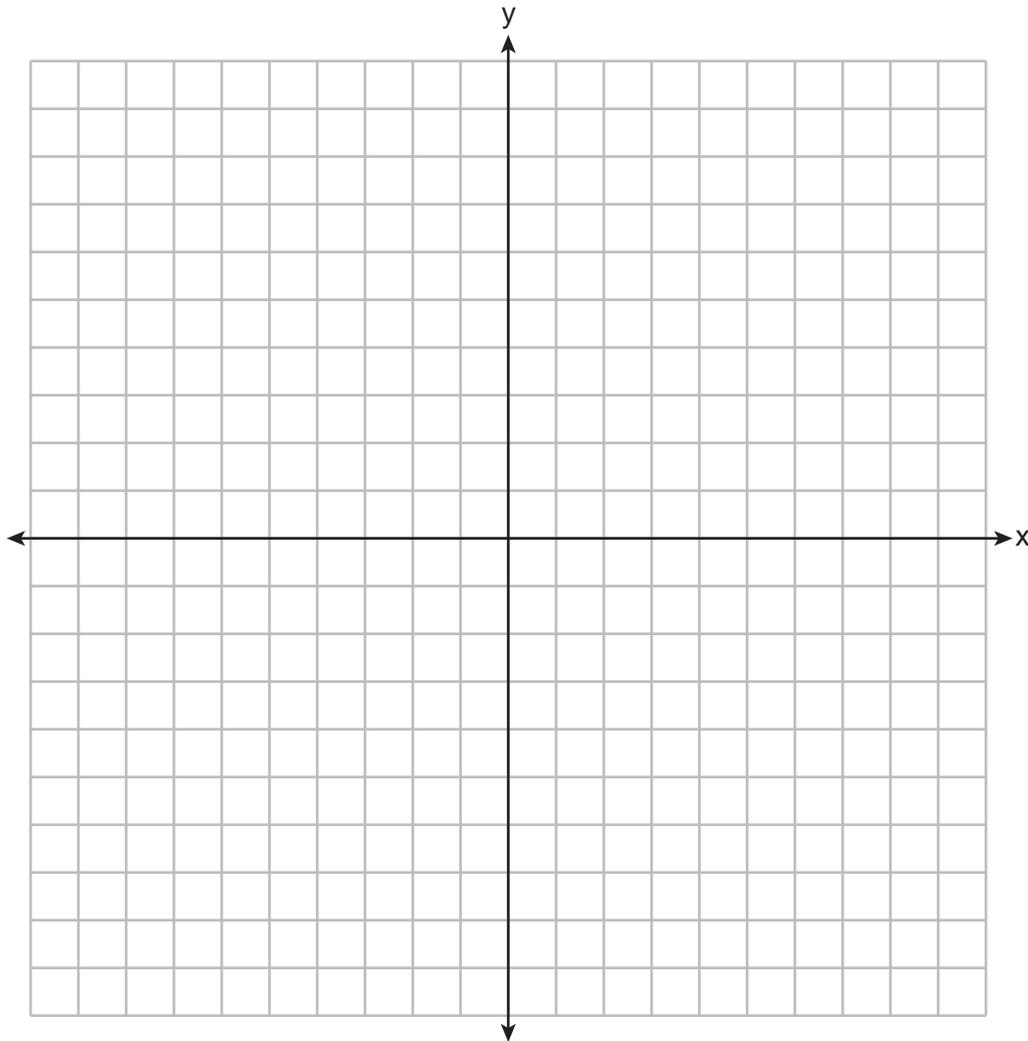
State the values of x that satisfy the equation $f(x) = g(x)$.

32 Using the quadratic formula, solve $6x^2 + 2x - 1 = 0$.

Express the answer in simplest radical form.

33 The table below shows the price of a new cell phone and the length of time, in months, since its release.

Time Since Release, in Months (x)	0	3	6	9	12
Price, in Dollars (y)	1200	1150	1100	1000	920

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

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

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

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

$$y = x^2 + 9x + 4$$
$$y - 2x = -6$$

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 Sarah earns $6 per hour babysitting and $12 per hour tutoring. Her goal is to earn at least $120 per week. Sarah is allowed to work a maximum of 14 hours per week doing both jobs.

If x represents the number of hours Sarah babysits and y represents the number of hours she tutors, write a system of inequalities that could model this situation.

On the set of axes below, graph the system of inequalities that you wrote.
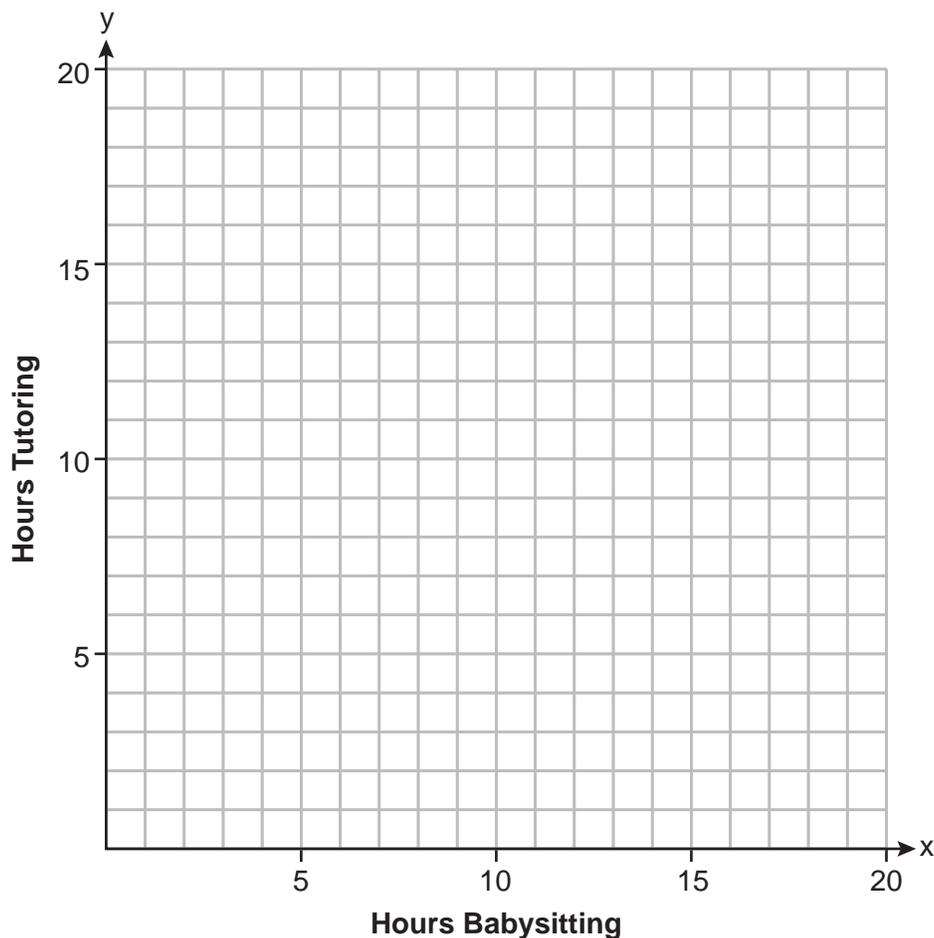
Hours Babysitting

Question 35 is continued on the next page.

State a combination of hours babysitting and tutoring that would satisfy this situation. Justify your answer.
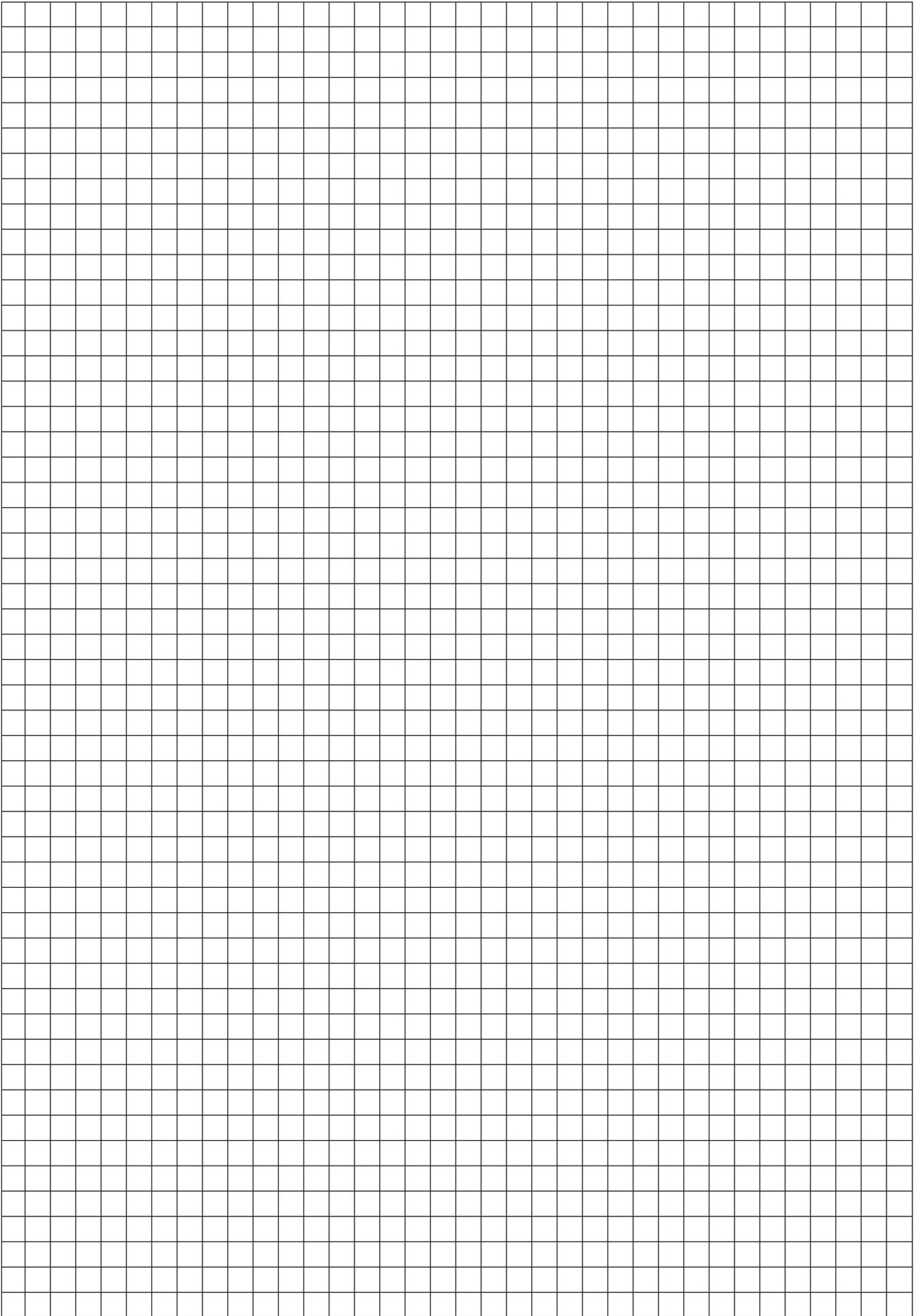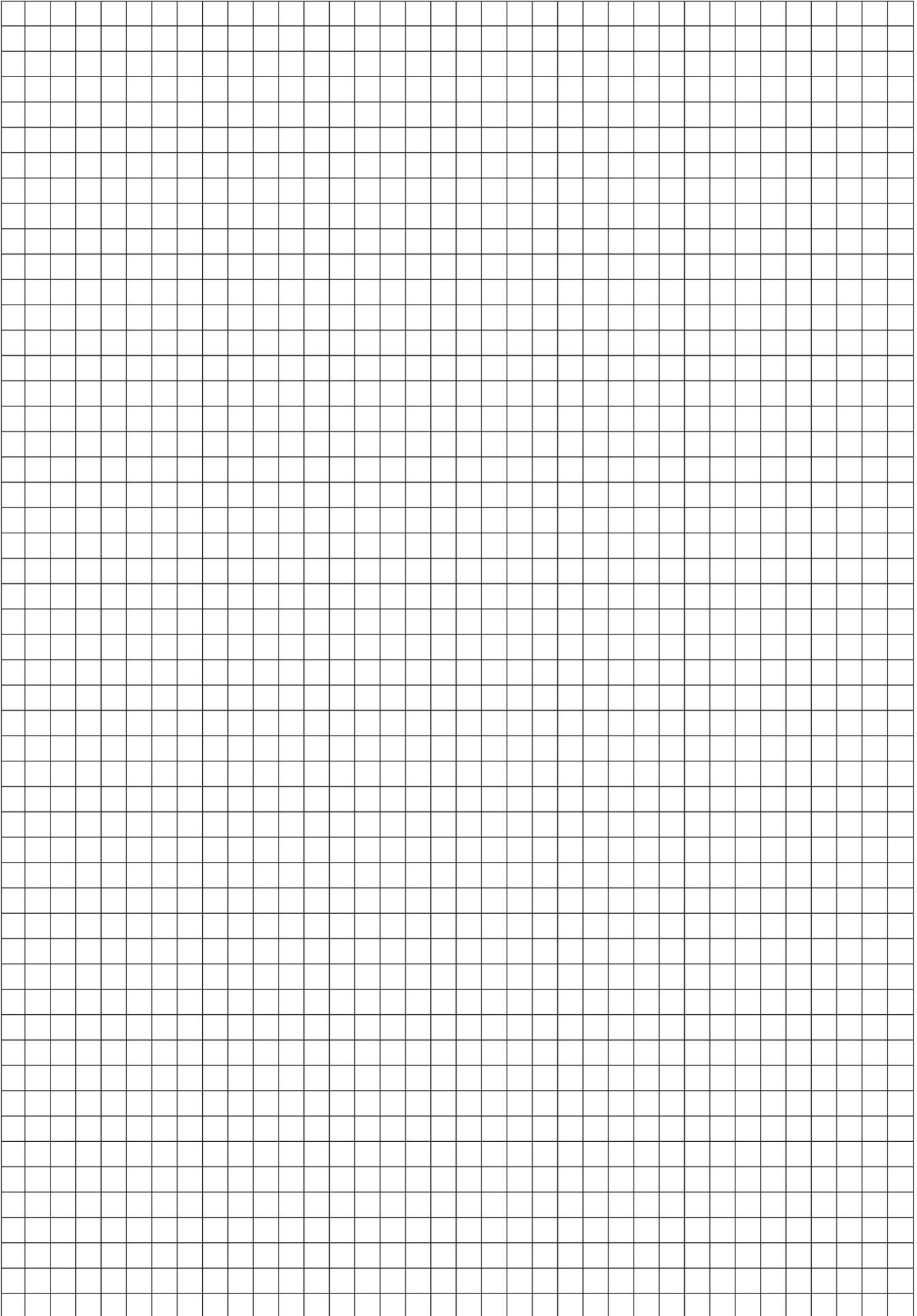
Tear Here

Tear Here

Reference Sheet for Algebra I

Conversions

1 mile = 5280 feet
1 mile = 1760 yards
1 pound = 16 ounces
1 ton = 2000 pounds

Conversions Across Measurement Systems

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 1.609 kilometers
1 kilometer = 0.6214 mile
1 pound = 0.454 kilogram
1 kilogram = 2.2 pounds

Quadratic Equation	$y = ax^2 + bx + c$	Exponential Equation	$y = ab^x$
Quadratic Formula	$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	Annual Compound Interest	$A = P(1 + r)^n$
Equation of the Axis of Symmetry	$x = -\dfrac{b}{2a}$	Arithmetic Sequence	$a_n = a_1 + d(n - 1)$
Slope	$m = \dfrac{y_2 - y_1}{x_2 - x_1}$	Geometric Sequence	$a_n = a_1 r^{n-1}$
Linear Equation Slope Intercept	$y = mx + b$	Interquartile Range (IQR)	$IQR = Q_3 - Q_1$
Linear Equation Point Slope	$y - y_1 = m(x - x_1)$	Outlier	Lower Outlier Boundary = $Q_1 - 1.5(IQR)$ Upper Outlier Boundary = $Q_3 + 1.5(IQR)$

ALGEBRA I

The State Education Department / The University of the State of New York
Regents Examination in Algebra I – June 2025
Scoring Key: Part I (Multiple-Choice Questions)

Examination	Date	Question Number	Scoring Key	Question Type	Credit
Algebra I	June '25	1	3	MC	2
Algebra I	June '25	2	2	MC	2
Algebra I	June '25	3	4	MC	2
Algebra I	June '25	4	3	MC	2
Algebra I	June '25	5	4	MC	2
Algebra I	June '25	6	1	MC	2
Algebra I	June '25	7	1	MC	2
Algebra I	June '25	8	4	MC	2
Algebra I	June '25	9	2	MC	2
Algebra I	June '25	10	3	MC	2
Algebra I	June '25	11	2	MC	2
Algebra I	June '25	12	1	MC	2
Algebra I	June '25	13	3	MC	2
Algebra I	June '25	14	4	MC	2
Algebra I	June '25	15	3	MC	2
Algebra I	June '25	16	1	MC	2
Algebra I	June '25	17	1	MC	2
Algebra I	June '25	18	1	MC	2
Algebra I	June '25	19	2	MC	2
Algebra I	June '25	20	1	MC	2
Algebra I	June '25	21	4	MC	2
Algebra I	June '25	22	1	MC	2
Algebra I	June '25	23	4	MC	2
Algebra I	June '25	24	3	MC	2

Regents Examination in Algebra I – June 2025
Scoring Key: Parts II, III, and IV (Constructed-Response Questions)

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

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

The chart for determining students' final examination scores for the **June 2025 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

Wednesday, June 18, 2025 — 1:15 to 4:15 p.m., only

RATING GUIDE

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. Check this web site at: 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 web site 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 web site at: https://www.nysed.gov/state-assessment/high-school-regents-examinations on Wednesday, June 18, 2025. 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.

	Juniors	Seniors	Total
Watch Videos	42	23	65
Listen to Music	14	21	35
Total	56	44	100

[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] Either 14 or 21 is written correctly in the table, but no further correct work is shown.

[0] Only the given information of 100, 65, 44, and 42 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]** $y > -3$, 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] $y > -3$, 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]** $-10x^2 + 41x - 21$, and correct work is shown.

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

or

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

or

[1] Appropriate work is shown, but the expression is not written in standard form.

or

[1] $-10x^2 + 41x - 21$, 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]** 22, 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] The common difference of 6 is stated, but no further correct work is shown.

or

[1] 22, 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.

(29) **[2]** $y = -3x - 1$, and correct work is shown.

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

or

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

or

[1] Appropriate work is shown, but the equation is not in slope-intercept form.

or

[1] $y = -3x - 1$, 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]** $x(x + 6)(x - 6)$, 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] $x(x^2 - 36)$, but no further correct work is shown.

or

[1] $x(x + 6)(x - 6)$, 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]** Correct graphs are drawn, and -2 and -1 are stated.

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

or

[3] Appropriate work is shown, but only -2 or -1 is stated.

or

[3] Appropriate work is shown, but the solution is written as $(-1,3)$ and $(-2,6)$.

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

or

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

or

[2] -2 and -1 are stated, but a method other than graphing is used.

[1] One correct graph is drawn, but no further correct work is shown.

or

[1] -2 and -1 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.

(32) **[4]** $\dfrac{-2 \pm 2\sqrt{7}}{12}$ or $\dfrac{-1 \pm \sqrt{7}}{6}$, and correct work using the quadratic formula is shown.

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

or

[3] Appropriate work is shown, but only one solution is stated.

or

[3] Appropriate work is shown to find $\dfrac{-2 \pm 2\sqrt{7}}{12}$, but a method other than the quadratic formula is used.

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

or

[2] Appropriate work is shown to find $\dfrac{-2 \pm \sqrt{28}}{12}$, but no further correct work is shown.

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

or

[1] $\dfrac{-2 \pm 2\sqrt{7}}{12}$, 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.

(33) **[4]** $y = -23.67x + 1216$, -0.99, 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] $y = -23.67x + 1216$ is written, but no further correct work is shown.

[1] -0.99 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.

(34) **[4]** $x = -5$, $y = -16$, and $x = -2$, $y = -10$, or $(-5, -16)$ and $(-2, -10)$, 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 to find either $(-5, -16)$ or $(-2, -10)$, but no further correct work is shown.

or

[3] Appropriate work is shown to find $x = -5$ and $x = -2$, but no further correct work is shown.

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

or

[2] Appropriate work is shown to find $(x + 5)(x + 2) = 0$, but no further correct work is shown.

or

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

or

[2] $x = -5$, $y = -16$, and $x = -2$, $y = -10$, 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] $(-5, -16)$ and $(-2, -10)$, 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]** $6x + 12y \geq 120$ and $x + y \leq 14$ are written, both inequalities are graphed correctly and at least one is labeled, a correct combination of babysitting hours and tutoring hours is stated, and a correct justification is given.

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

or

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

or

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

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

or

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

   [3] $6x + 12y \geq 120$ and $x + y \leq 14$ are written and the lines $6x + 12y = 120$ and $x + y = 14$ are graphed appropriately, and at least one is labeled, but no further correct work is shown.

   [2] Both inequalities are written correctly, but no further correct work is shown.

or

   [2] Only one inequality is written and graphed correctly, but no further correct work is shown.

or

   [2] An appropriate combination is stated and an appropriate justification is given, but no further correct work is shown.

   [1] Only one inequality is written, but no further correct work is shown.

or

   [1] An appropriate combination 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.

Map to the Learning Standards
Algebra I
June 2025

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

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

The **Chart for Determining the Final Examination Score for the June 2025 Regents Examination in Algebra I** will be posted on the Department's web site at: **https://www.nysed.gov/state-assessment/high-school-regents-examinations** 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.

ALGEBRA I

Wednesday, June 18, 2025 — 1:15 to 4:15 p.m., only

MODEL RESPONSE SET

Table of Contents

25 A survey was taken to determine whether students preferred to watch videos or listen to music. Of the 100 students surveyed, 44 were seniors. Of the 65 students who preferred to watch videos, 42 were juniors. Use this information to complete the frequency table below.

	Juniors	Seniors	Total
Watch Videos	42	23	65
Listen to Music	14	21	35
Total	56	44	100

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

25 A survey was taken to determine whether students preferred to watch videos or listen to music. Of the 100 students surveyed, 44 were seniors. Of the 65 students who preferred to watch videos, 42 were juniors. Use this information to complete the frequency table below.

	Juniors	Seniors	Total
Watch Videos	42	23	65
Listen to Music	16	21	37
Total	56	44	100

Score 1: The student wrote 21 correctly in the table, but no further correct work is shown.

25 A survey was taken to determine whether students preferred to watch videos or listen to music. Of the 100 students surveyed, 44 were seniors. Of the 65 students who preferred to watch videos, 42 were juniors. Use this information to complete the frequency table below.

	Juniors	Seniors	Total
Watch Videos	42	23	55
Listen to Music	14	21	35
Total	56	44	100

Total = 100 students

Seniors = 44

100
- 44
―――
56 Juniors

42 Juniors watch
+ 23 seniors watch
―――――――
55 total watch

65
- 42 Juniors watch
―――――――
23 seniors watch

44 seniors
- 23 seniors watch
―――――――――
21 seniors listen

35 listen total
- 21 listen seniors
―――――――――
14 juniors listen

Score 1: The student made one computational error.

25 A survey was taken to determine whether students preferred to watch videos or listen to music. Of the 100 students surveyed, 44 were seniors. Of the 65 students who preferred to watch videos, 42 were juniors. Use this information to complete the frequency table below.

	Juniors	Seniors	Total
Watch Videos	42	56	98
Listen to Music	23	44	67
Total	65	100	165

$$
\begin{array}{r} 100 \\ -44 \\ \hline 56 \end{array}
\qquad
\begin{array}{r} 65 \\ 44 \\ \hline 23 \end{array}
$$

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

26 Solve the inequality for y:

$$5(2 - y) > -11y - 8$$

$$5(2-y) > -11y-8$$

$$10 - 5y > -11y - 8$$

$$-5y + 11y > -8 - 10$$

$$\frac{6y}{6} > \frac{-18}{6}$$

$$y > -3$$

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

26 Solve the inequality for y:

$$5(2 - y) > -11y - 8$$

$$10 - 5y > -11y - 8$$
$$+ 8 \qquad\qquad\quad + 8$$

$$18 - 5y > -11y$$
$$+ 5y \qquad + 5y$$

$$\frac{18}{-6} > \frac{-6y}{-6}$$

$$-3 < y$$

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

26 Solve the inequality for y:

$$5(2 - y) > -11y - 8$$

$$10 - 5y > -11y - 8$$
$$+11y \quad +11y$$
$$\overline{}$$
$$10 + 6y > -8$$
$$-10 \qquad -10$$

$$\frac{6y}{6} > \frac{-18}{6}$$

$$\boxed{y < -3}$$

Score 1: The student wrote an incorrect inequality sign.

26 Solve the inequality for y:

$$5(2 - y) > -11y - 8$$

$$5(\overset{\frown}{2-Y}) > -11y - 8$$
$$10 - 5y > -11y - 8$$
$$-10 \qquad > \qquad -10$$
$$5y > -11y - 18$$
$$+11y \qquad +11y$$
$$\frac{16y > -18}{16}$$
$$y > \frac{-18}{16}$$

Score 1: The student made an error by transposing a negative 5 to a positive 5.

26 Solve the inequality for y:

$$5(2 - y) > -11y - 8$$

$$5(2-y) > -11y -8$$
$$+1$$
$$2\;6$$

$$8+ 10 -5y > -11y$$

$$18-5y > -11y$$
$$+5 \qquad +5$$

$$\frac{18}{6} < \frac{6y}{6}$$

$$\boxed{y = 3}$$

Score 0: The student made two errors.

26 Solve the inequality for y:

$$5(2 - y) > -11y - 8$$

$$5(2-y) > -11y - 8$$

$$10 - 5y > -11y - 8$$
$$+8 \qquad\qquad +8$$

$$18 - 5y > -11y$$
$$+5y \quad +5y$$

$$18 > -16y$$
$$\overline{-16} \quad \overline{-16}$$

$$-1.125 > y$$

Score 0: The student made two errors.

27 Express $(5x - 3)(-2x + 7)$ as a trinomial in standard form.

$$-10x^2 + 35x + 6x - 21$$

$$-10x^2 + 41x - 21$$

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

27 Express $(5x - 3)(-2x + 7)$ as a trinomial in standard form.

$$-10x^2 + 41x - 21$$

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

27 Express $(5x - 3)(-2x + 7)$ as a trinomial in standard form.

$$-10x^2 + 35x - 6x - 21$$

$$-10x^2 + 29x - 21$$

Score 1: The student made one computational error.

27 Express $(5x - 3)(-2x + 7)$ as a trinomial in standard form.

$-10x + 35 + 6 + 35$

$41 + 35 - 10x$

$\cdot$ standard form : highest exponents in front

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

27 Express $(5x - 3)(-2x + 7)$ as a trinomial in standard form.

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

28 The first and fourth terms in an arithmetic sequence are given below.

$$-20, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, -2 \qquad 18/3 = 6$$

Determine the eighth term.

$$a_n = a_1 + d(n-1)$$

step 1 $\quad a_8 = -20 + 6(8-1)$

Step 2 $\quad a_8 = -20 + 48 - 6$

step 3 $\quad a_8 = -20 + 42$

$$a_8 = 22$$

The 8th term is 22

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

28 The first and fourth terms in an arithmetic sequence are given below.

$d = 6$

$$-20, \underline{\hspace{0.3cm} -14 \hspace{0.3cm}}, \underline{\hspace{0.3cm} -8 \hspace{0.3cm}}, -2$$

Determine the eighth term.

$$
\begin{array}{ll}
1 & -20 \\
2 & -14 \\
3 & -8 \\
4 & -2 \\
5 & 4 \\
6 & 10 \\
7 & 16 \\
8 & 22 \\
9 & 28 \\
10 & 34 \\
\end{array}
$$

$$a_8 = 22$$

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

28 The first and fourth terms in an arithmetic sequence are given below.

$$-20, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, -2$$

Determine the eighth term.

$d = +6$

$f(1) = -20 \qquad f(4) = -2$

$f(n) = f(1) + d(n-1)$

$\begin{aligned} f(4) & \quad -2 + 6 = 4 \\ f(5) & \quad 4 + 6 = 10 \\ f(6) & \quad 10 + 6 = 16 \\ f(7) & \quad 16 + 6 = 22 \\ f(8) & \quad 22 + 6 = 28 \end{aligned}$

$f(8) = 28$

Score 1: The student misnumbered the terms.

28 The first and fourth terms in an arithmetic sequence are given below.

$$-20, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, -2$$

−20 to −2 = 18

Determine the eighth term.

18 ÷ 2 = 9 → the number is +9 so if −2 = 4th term
the I just kept on adding 9
til I got to the eigth. term

$a_4 = -2$

$a_8 = 34$

Score 1: The student made an error in finding the common difference, but used it appropriately.

28 The first and fourth terms in an arithmetic sequence are given below.

$$-20, \underset{\underline{}}{\overset{+6}{-14}}, \underset{\underline{}}{\overset{+6}{-8}}, \overset{+6}{-2}$$

Determine the eighth term.

$$a_n = a_1 + d(n-1)$$

$$a_8 = -20 + d(8-1)$$

$$a_8 = -20 + 6(7)$$

$$a_8 = -14(7)$$

$$\boxed{a_8 = -98}$$

$$a = -20 +$$

Score 1: The student found the common difference of 6, but made an error in simplifying $a_8 = -20 + 6(7)$.

28 The first and fourth terms in an arithmetic sequence are given below.

$$-20, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, -2$$

Determine the eighth term.

1	2	3	4	5	6	7	8
-20	-12	-4	-2				

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

28 The first and fourth terms in an arithmetic sequence are given below.

$$-20, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, -2$$

Determine the eighth term.

$a_n = a_1 + d(n-1)$

$a_8 = -20 + d(2-1)$

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

29 Write an equation in slope-intercept form for the line that passes through $(-2,5)$ and has a slope of -3. [Use of the set of axes below is optional.]

$$y = -3x - 1$$
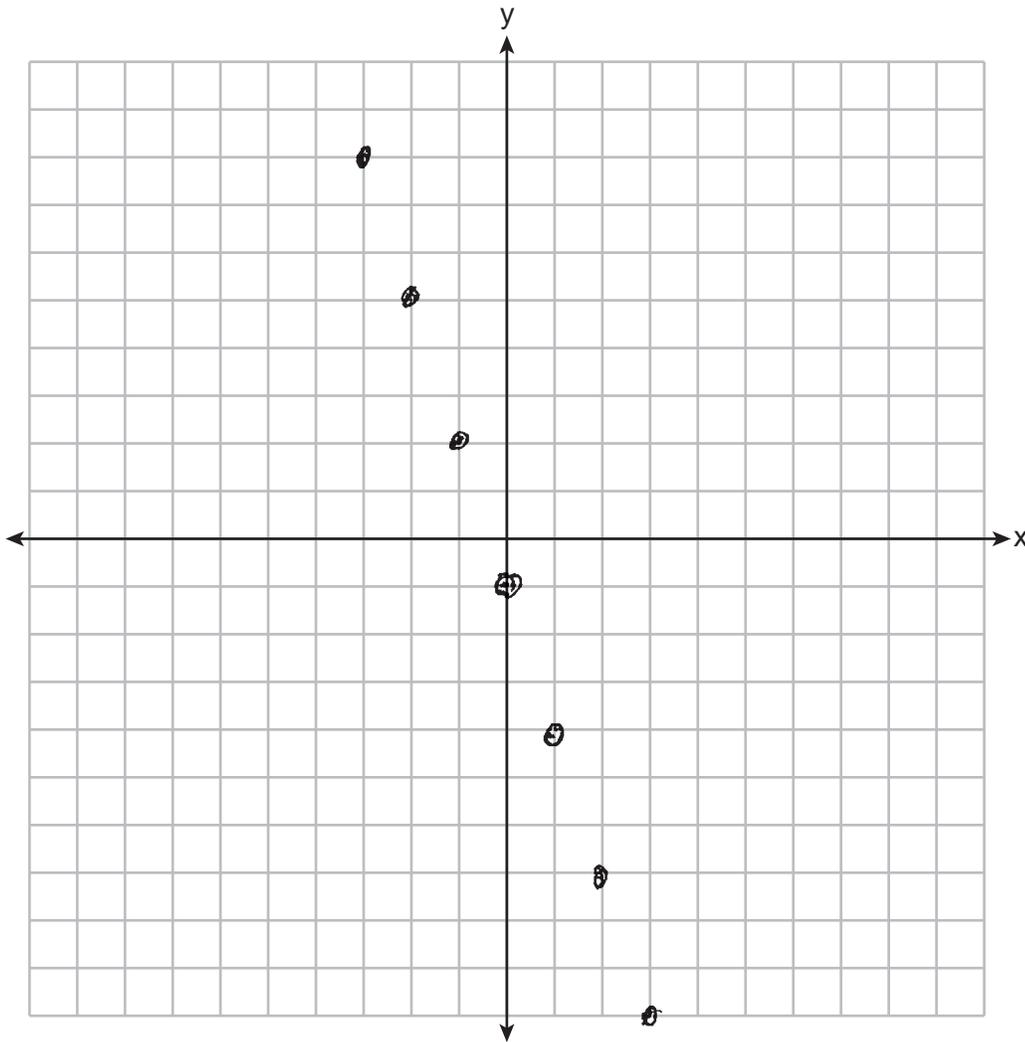
Score 2: The student gave a complete and correct response.

29 Write an equation in slope-intercept form for the line that passes through $(-2,5)$ and has a slope of -3. [Use of the set of axes below is optional.]

$$y - 5 = -3(x - (-2))$$
$$y - 5 = -3x - 6$$
$$ + 5 + 5$$
$$y = -3x - 1$$

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

29 Write an equation in slope-intercept form for the line that passes through $(-2,5)$ and has a slope of -3. [Use of the set of axes below is optional.]

$$y = -3x - 2$$
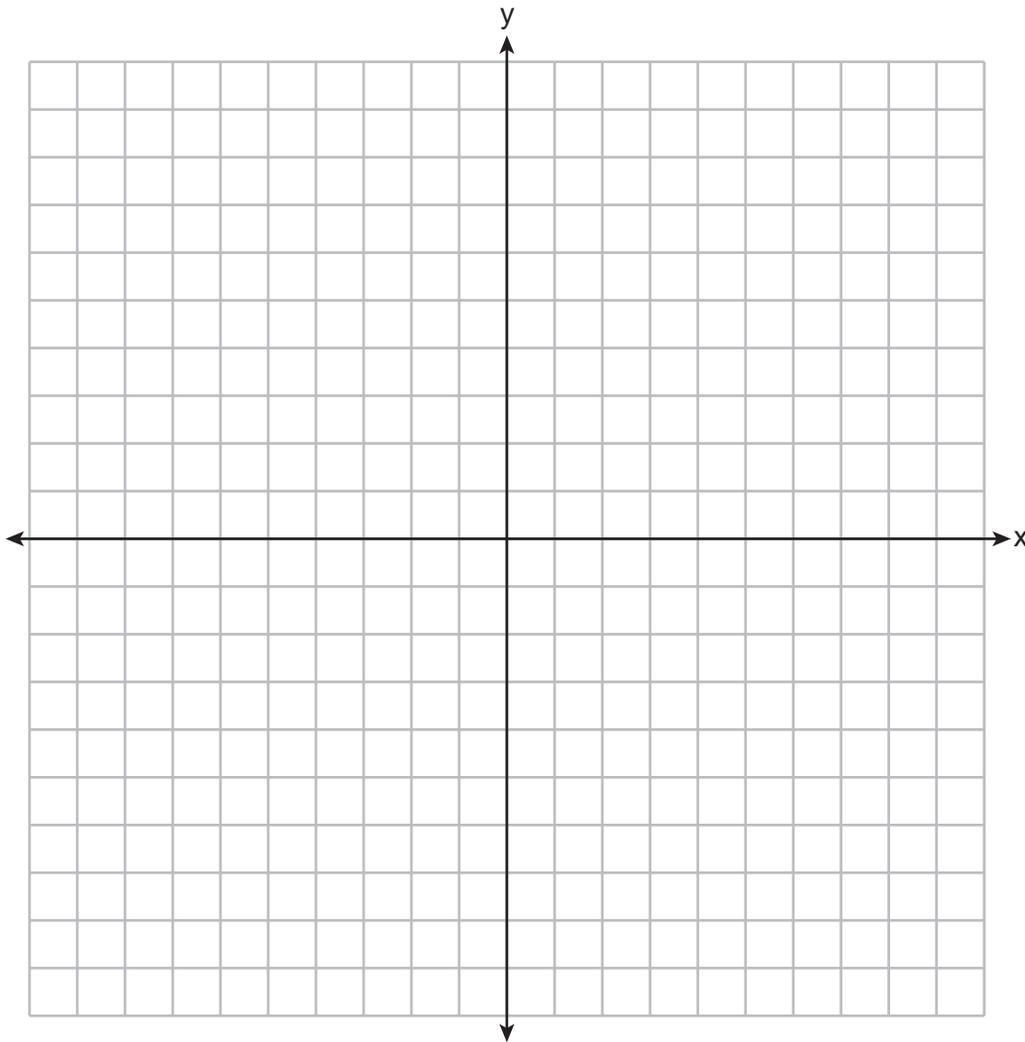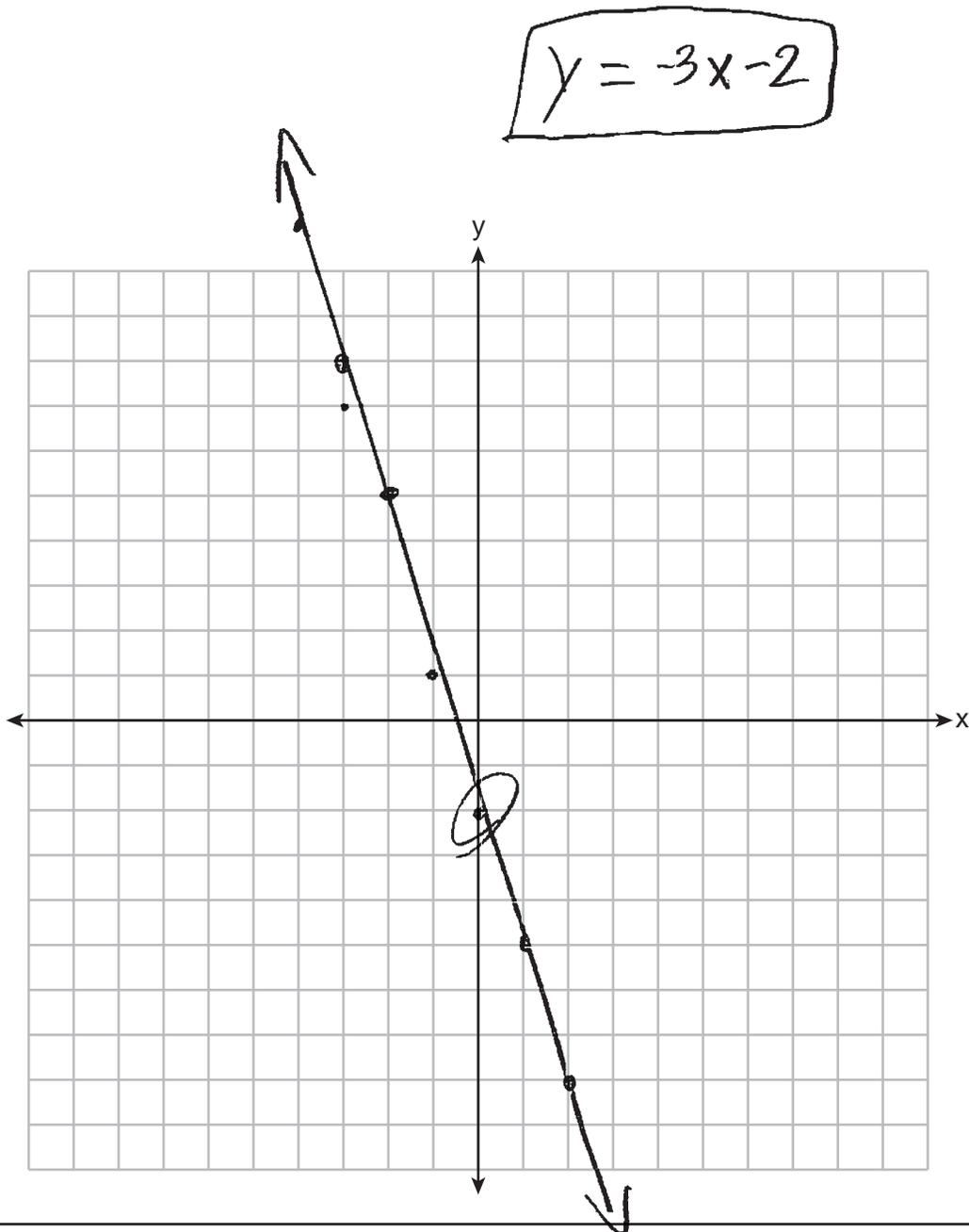
Score 1: The student made one graphing error.

29 Write an equation in slope-intercept form for the line that passes through $(-2,5)$ and has a slope of -3. [Use of the set of axes below is optional.]

$y = mx + b$ $\quad xy$

$\boxed{m}$

X	Y
-2	-8
-1	-7
0	-6
1	-5
2	-4
3	-3
4	-2
5	-1
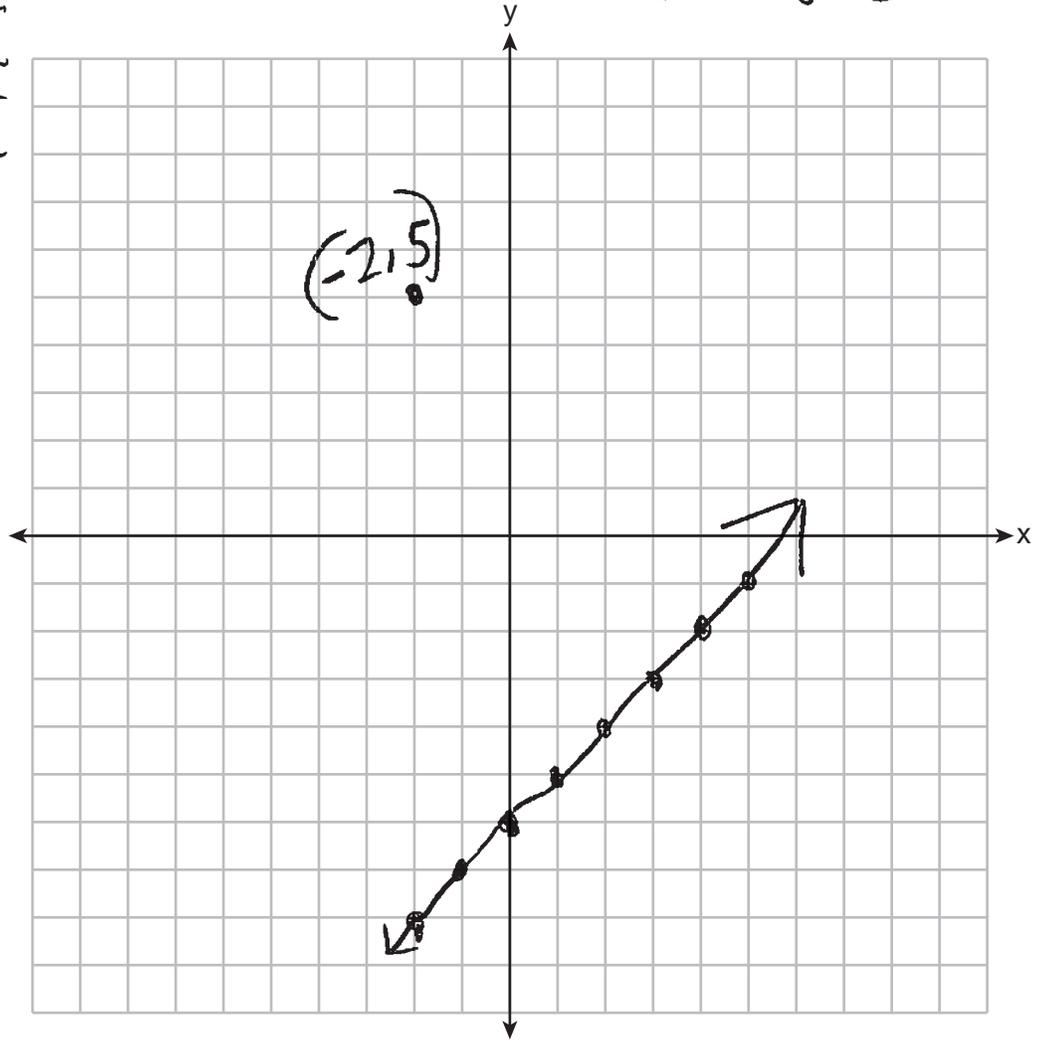
$y = mx + b$

$5 = (3)(-2) + b$

$5 = -6 + b$

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

29 Write an equation in slope-intercept form for the line that passes through $(-2,5)$ and has a slope of -3. [Use of the set of axes below is optional.]
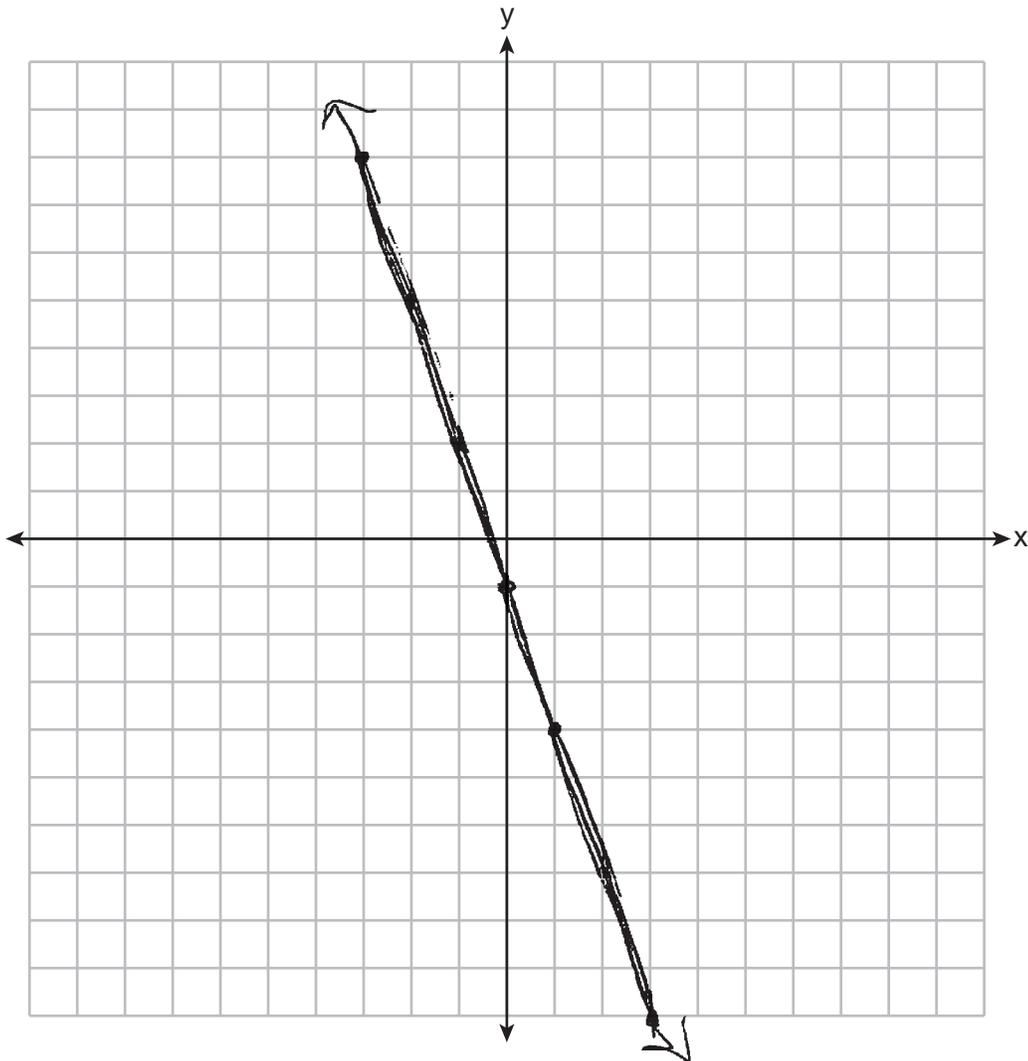
Score 0: The student did not write an equation.

30 Factor the expression $x^3 - 36x$ completely.

$$\frac{x\,(x^2-36)}{x\,(x+6)(x-6)}$$

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

30 Factor the expression $x^3 - 36x$ completely.
$$\frac{x^3}{x} \quad \frac{36x}{x}$$

$$x^2 + 0x - 36$$

$$\frac{-36}{-6 \cdot 6}$$

$$x(x-6)(x+6)$$

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

30 Factor the expression $x^3 - 36x$ completely.

$$x^3 - 36x$$

$$x(x^2 - 36)$$

$$x(x-6)(x+6)$$

$$x(x-6) = 0 \qquad x + 6 = 0$$
$$\qquad\qquad\qquad -6 \quad -6$$
$$x^2 - 6x = 0$$
$$+6x \quad 6x \qquad \boxed{x_2 = -6}$$
$$\frac{x^2}{x} = \frac{6x}{x}$$

$$\boxed{x_1 = 6}$$

$$x = [6, -6]$$

Score 1: The student factored correctly, but attempted to solve the factored expression as an equation.

30 Factor the expression $x^3 - 36x$ completely.

$$x(x^2 - 36)$$

$$x(x-4)(x+4)$$

Score 1: The student made one factoring error.

30 Factor the expression $x^3 - 36x$ completely.

$$X\left(x^3 - 36x\right)$$

$$x^2 - 36$$

$$(x-18)(x+18) = 0$$

$$X-18 = 0 \quad | \quad X+18 = 0$$

$$\boxed{X = 18} \quad \boxed{X = -18}$$

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

30 Factor the expression $x^3 - 36x$ completely.

$$x^3 - 36x$$

$$(x^2 - 6)(x + 6)$$

$$x^2 - 6 = 6 \qquad x + 6 = 0$$

$$x^2 = 46 \qquad \boxed{x = -6}$$

$$x = \pm 6$$

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

31 Graph $f(x) = -3x$ and $g(x) = x^2 + 2$ on the set of axes below.

$f(x) = -3x$

$m = -3$

$b = 0$

$g(x) = x^2 + 2$

Up 2 units
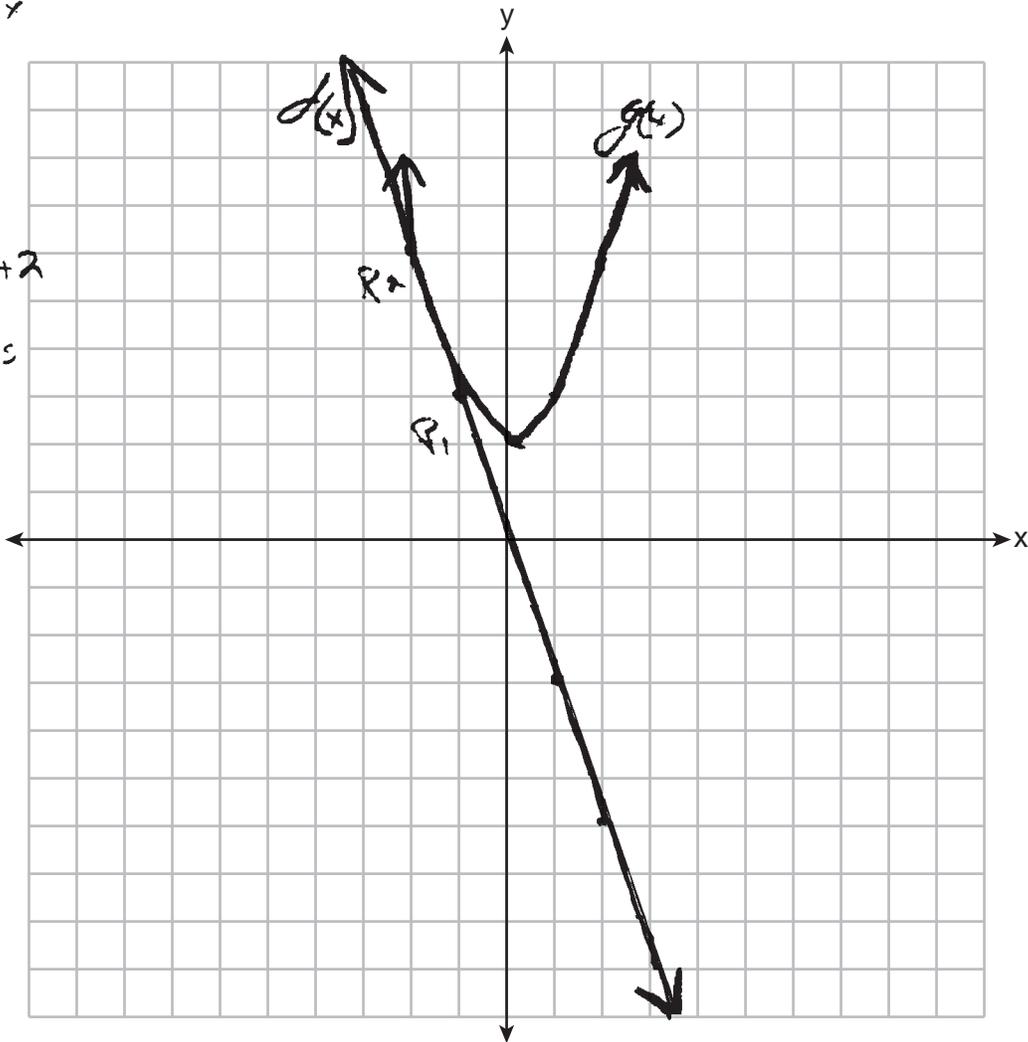
State the values of x that satisfy the equation $f(x) = g(x)$.

$x = -1$
$x = -2$

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

31 Graph $f(x) = -3x$ and $g(x) = x^2 + 2$ on the set of axes below.

State the values of x that satisfy the equation $f(x) = g(x)$.

$$f(-1) = g(-1) \qquad f(-2) = g(-2)$$

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

Question 31

31 Graph $f(x) = -3x$ and $g(x) = x^2 + 2$ on the set of axes below.
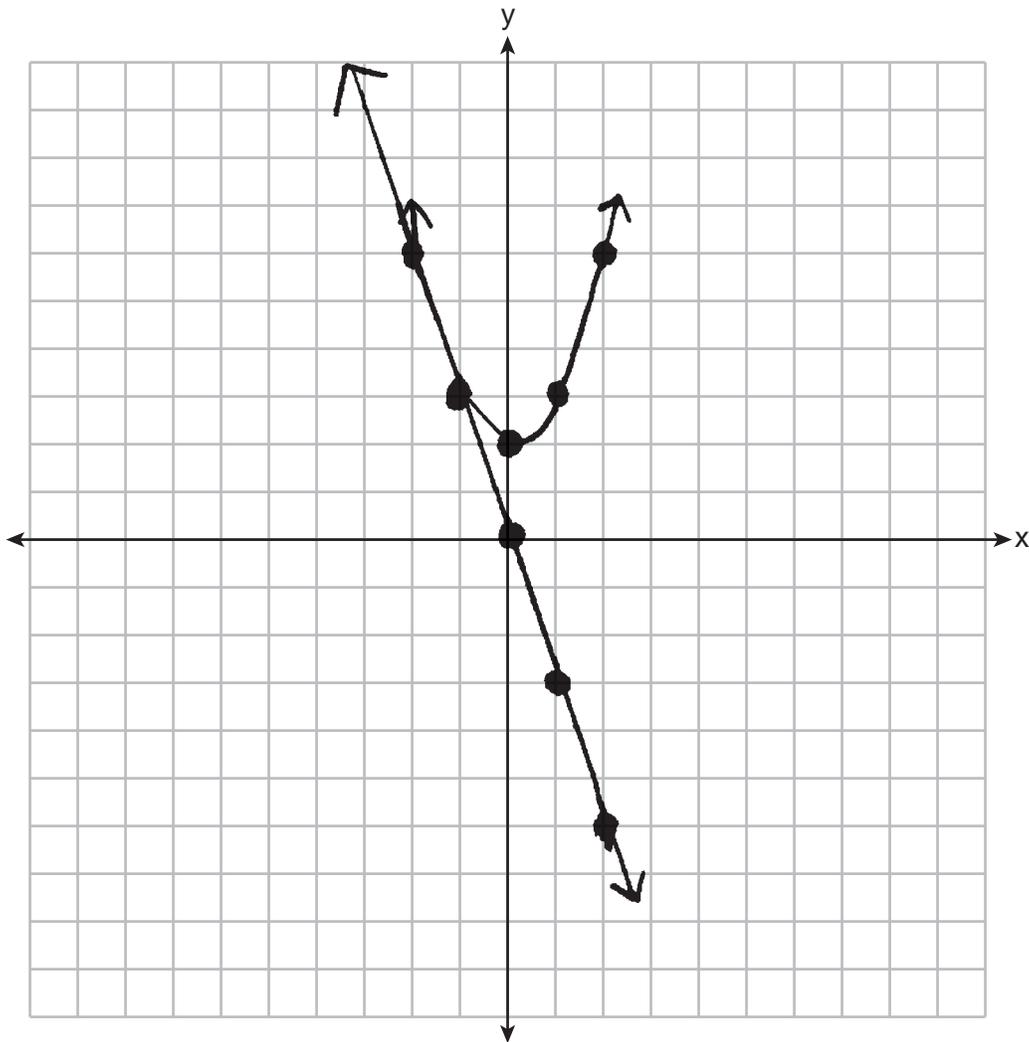
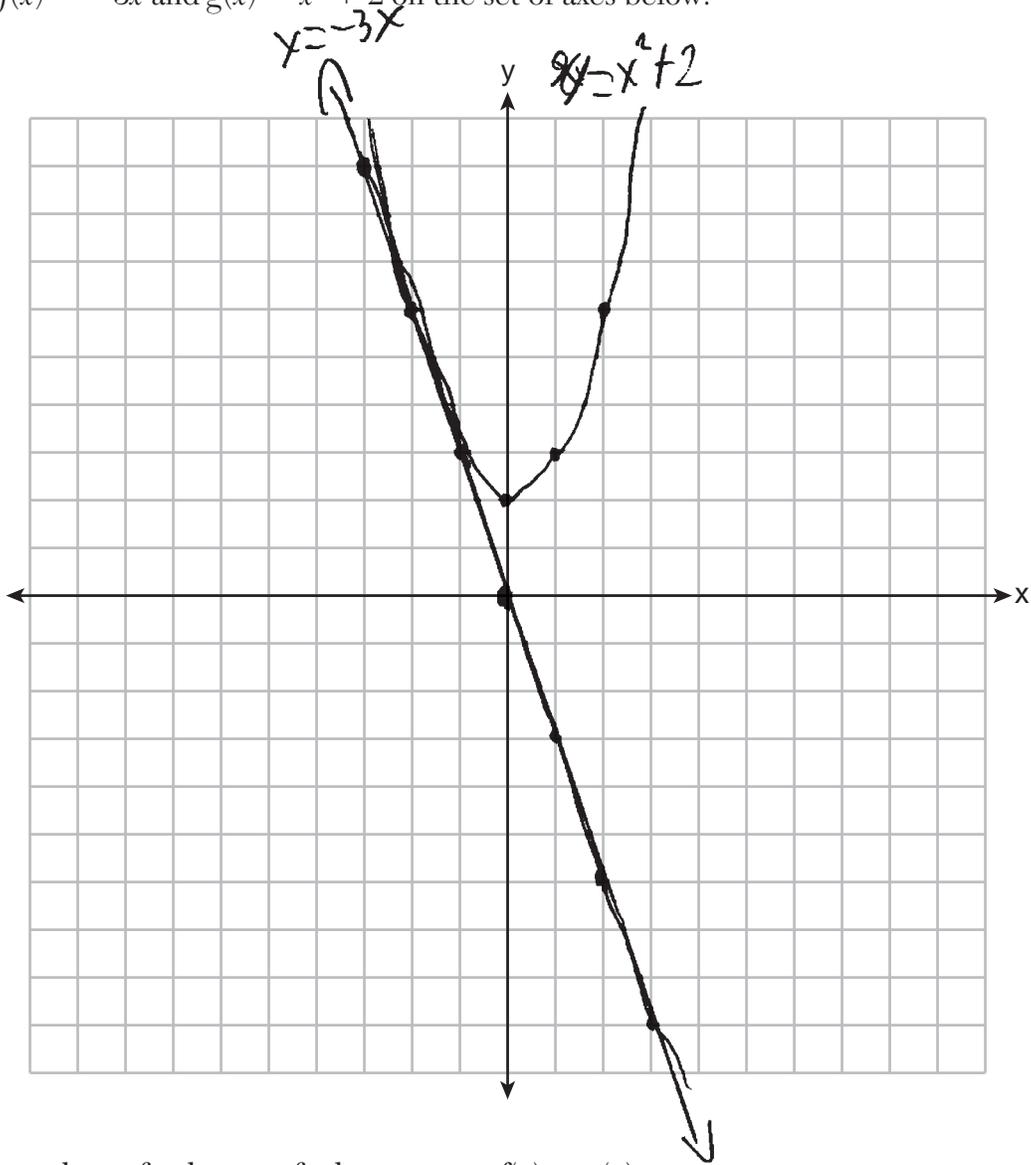State the values of x that satisfy the equation $f(x) = g(x)$.

$X = -5.5$
$X = 2.5$

$-3x = x^2 + 2$
$+3x \quad +3x$

$x^2 + 3x + 2$

$\dfrac{-3 \pm \sqrt{3^2 - 4(1)(2)}}{2(1)} \quad \dfrac{-3-8}{2}$
-5.5

$\dfrac{-3 \pm \sqrt{9+55}}{2} \quad \dfrac{-3 \pm \sqrt{64}}{2}$

$\dfrac{-3+8}{2} = 2.5$

Score 3: The student made one computational error when solving $f(x) = g(x)$ algebraically.

Question 31

31 Graph $f(x) = -3x$ and $g(x) = x^2 + 2$ on the set of axes below.

f(x)

f(x)

X	Y
-3	9
-2	6
-1	3
0	0
1	3
2	6
3	9

g(x)

X	Y
-2	6
-1	3
0	2
1	3
2	6
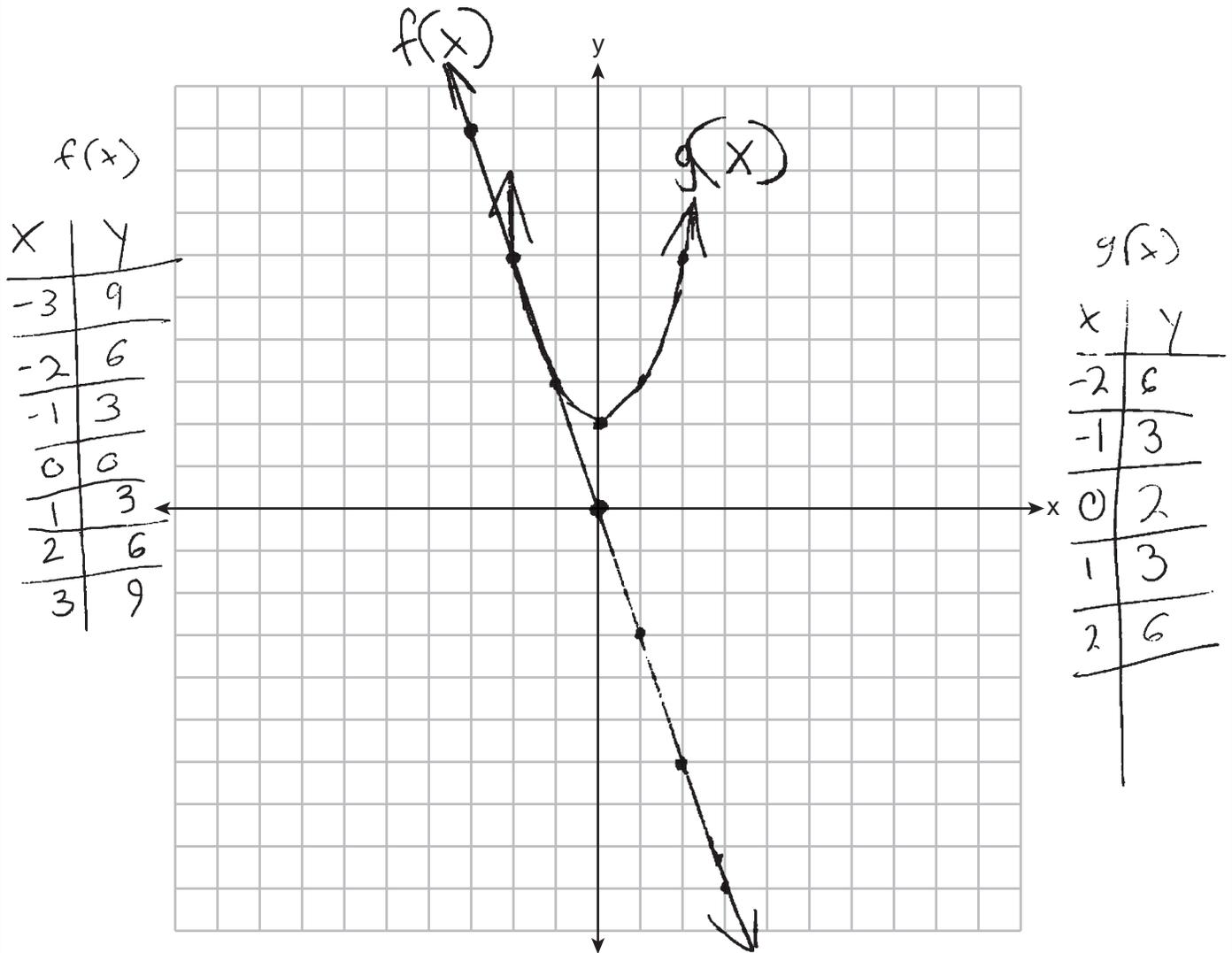
State the values of x that satisfy the equation $f(x) = g(x)$.

$(-2, 6) \quad (-1, 3)$

Score 3: The student stated the answer as coordinates.

Question 31

31 Graph $f(x) = -3x$ and $g(x) = x^2 + 2$ on the set of axes below.
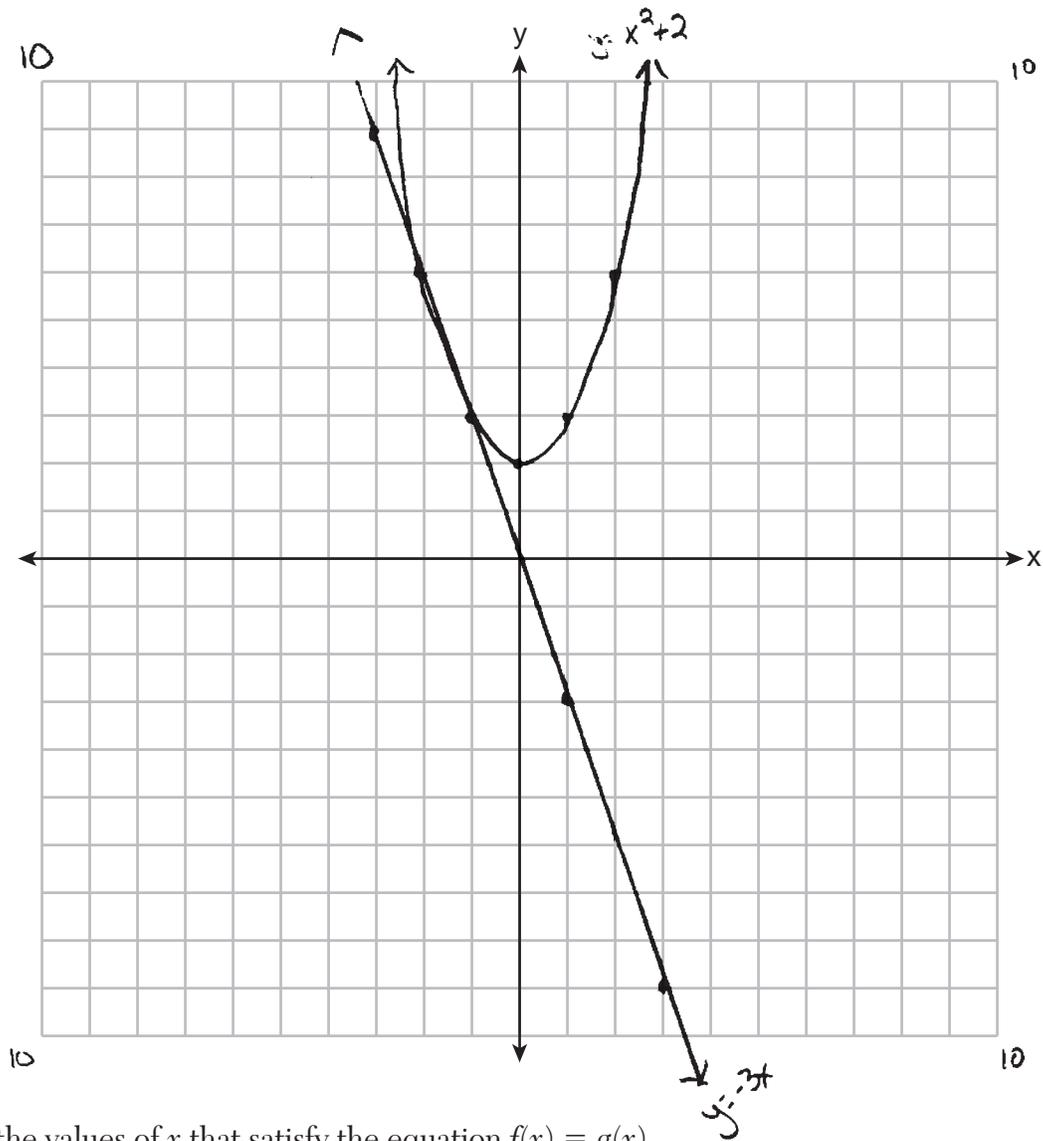
State the values of x that satisfy the equation $f(x) = g(x)$.

$$f(x) = g(x)$$
$$f(-1) = g(-1)$$

Score 3: The student only gave one value for x.

31 Graph $f(x) = -3x$ and $g(x) = x^2 + 2$ on the set of axes below.

$y = -3x$

$y = x^2 + 2$

State the values of x that satisfy the equation $f(x) = g(x)$.

$(-1, 3)$

Score 2: The student graphed both equations correctly, but no further correct work was shown.

31 Graph $f(x) = -3x$ and $g(x) = x^2 + 2$ on the set of axes below.
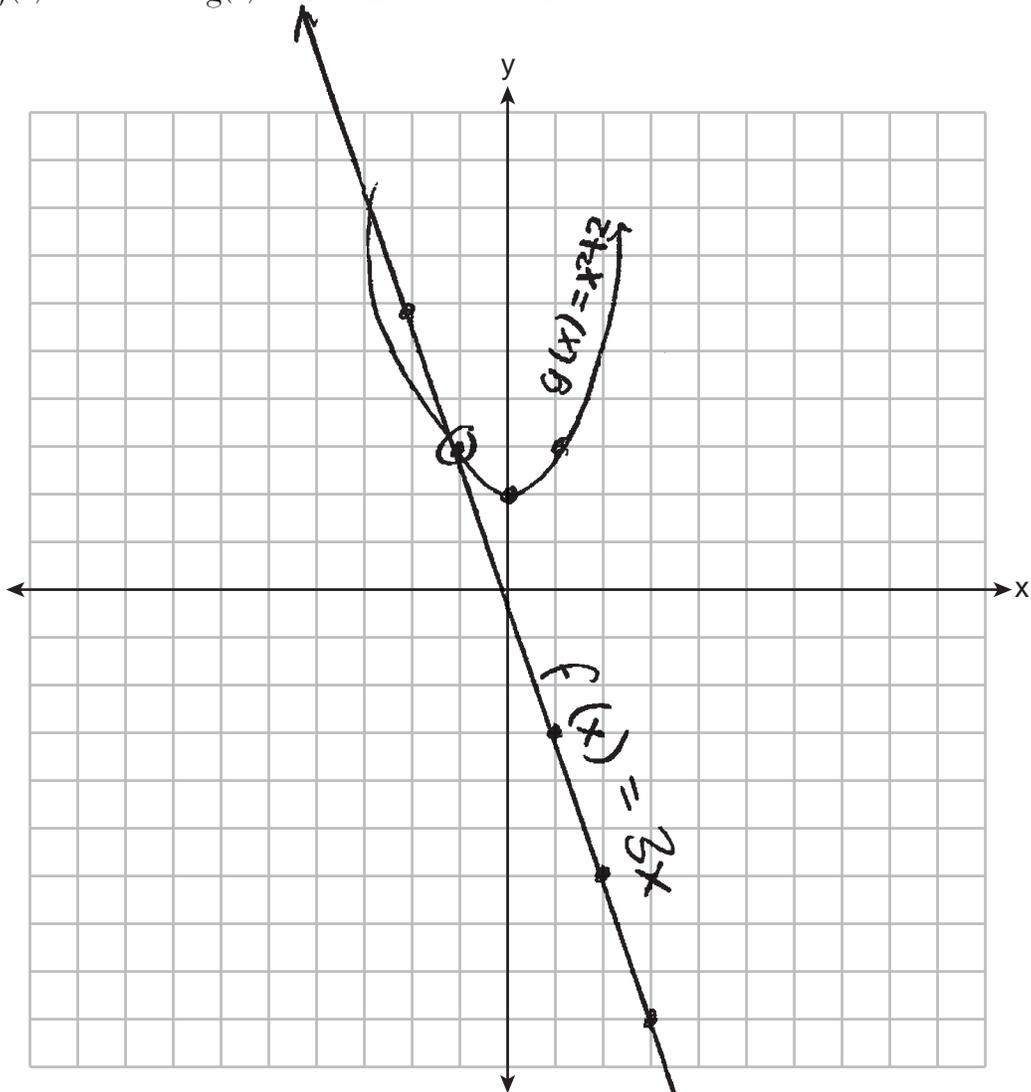
$g(x) = x^2 + 2$

$f(x) = -3x$

$y = f(x)$

$z = G(x)$

State the values of x that satisfy the equation $f(x) = g(x)$.

$(X = -1)$

(ck) $y = -3(-1)$

$y = 3$

$z = -1^2 + 2$

$1 + 2$

$z = 3$

$y = 2$

Score 2: The student graphed $f(x) = -3x$ correctly and stated $x = -1$.

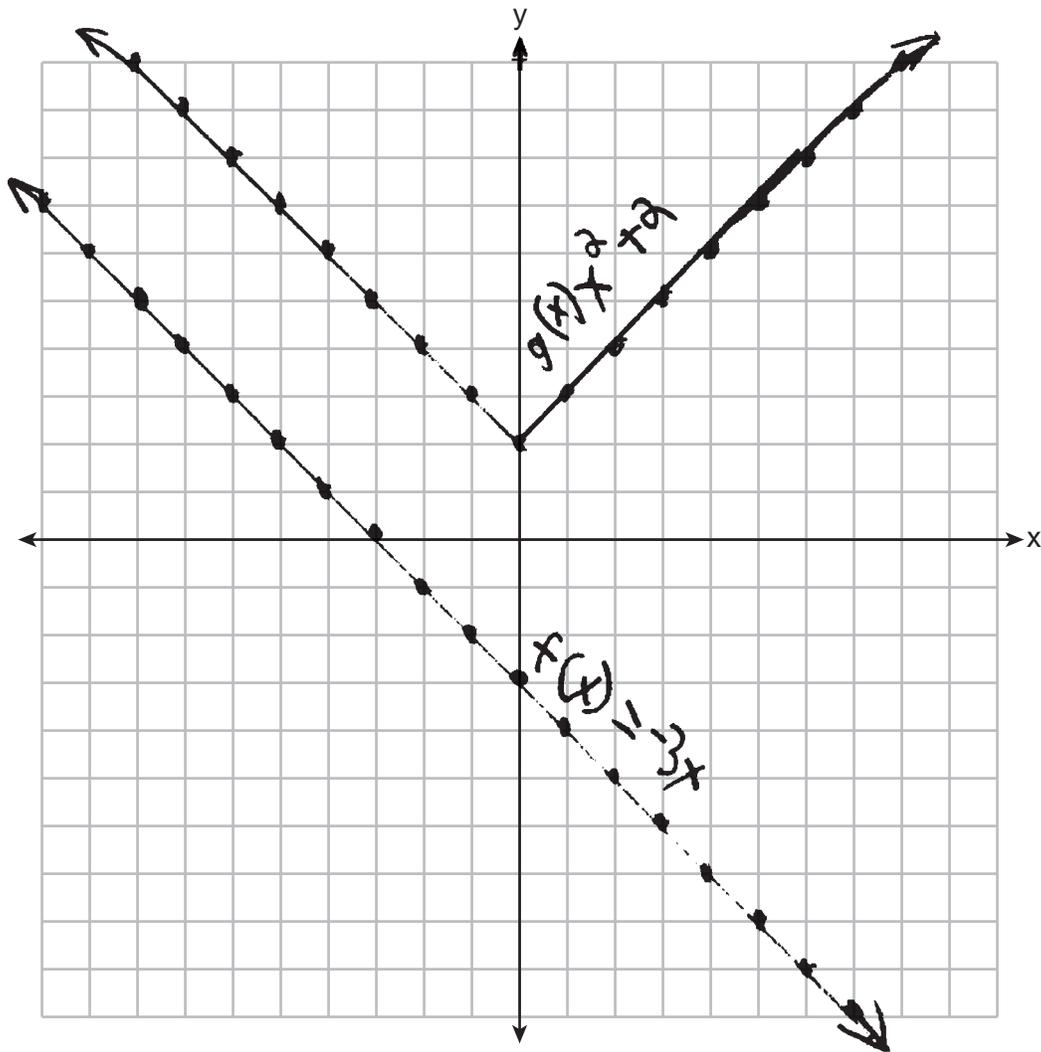**31** Graph $f(x) = -3x$ and $g(x) = x^2 + 2$ on the set of axes below.
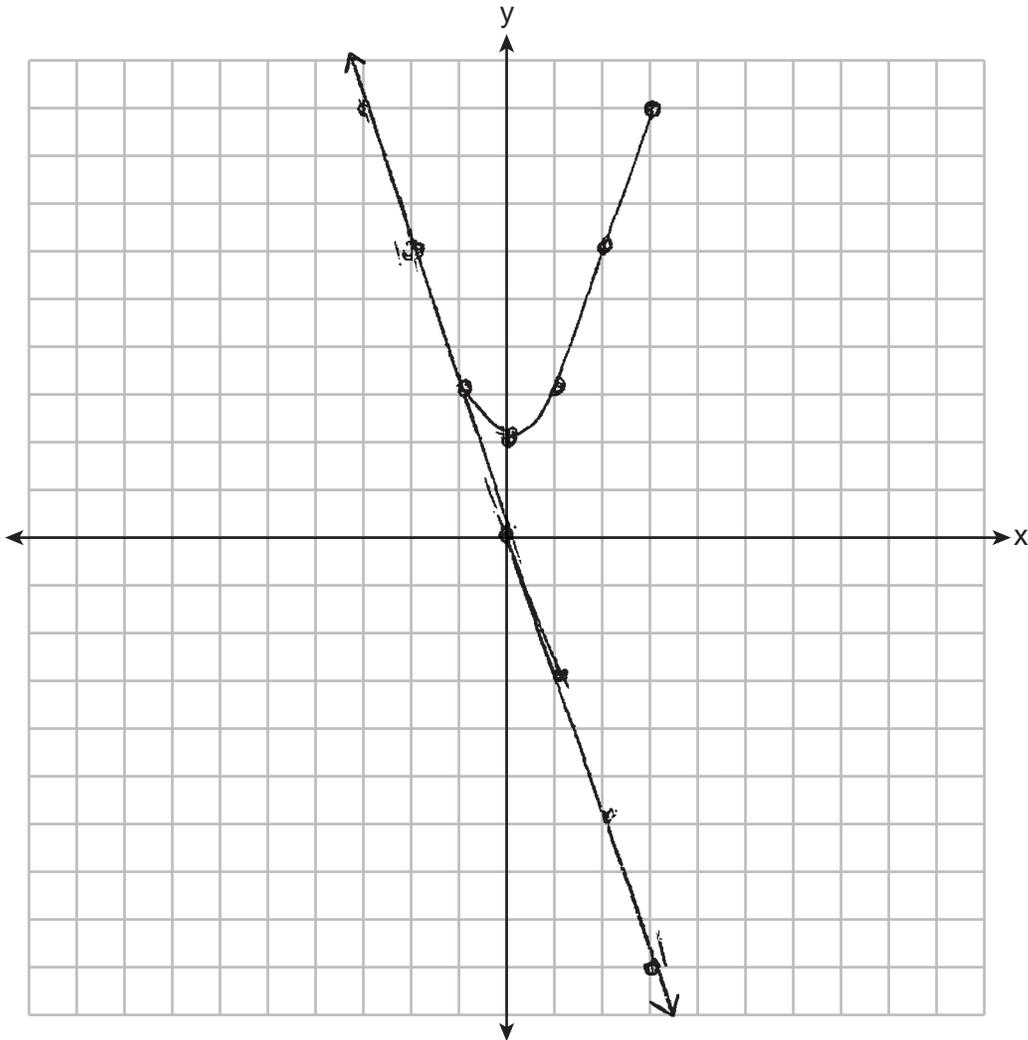
State the values of x that satisfy the equation $f(x) = g(x)$.

$(-1, 3) \ (-2, 6) \ (-3, 11)$

Score 1: The student graphed $f(x) = -3x$ correctly, but no other correct work was shown.

31 Graph $f(x) = -3x$ and $g(x) = x^2 + 2$ on the set of axes below.

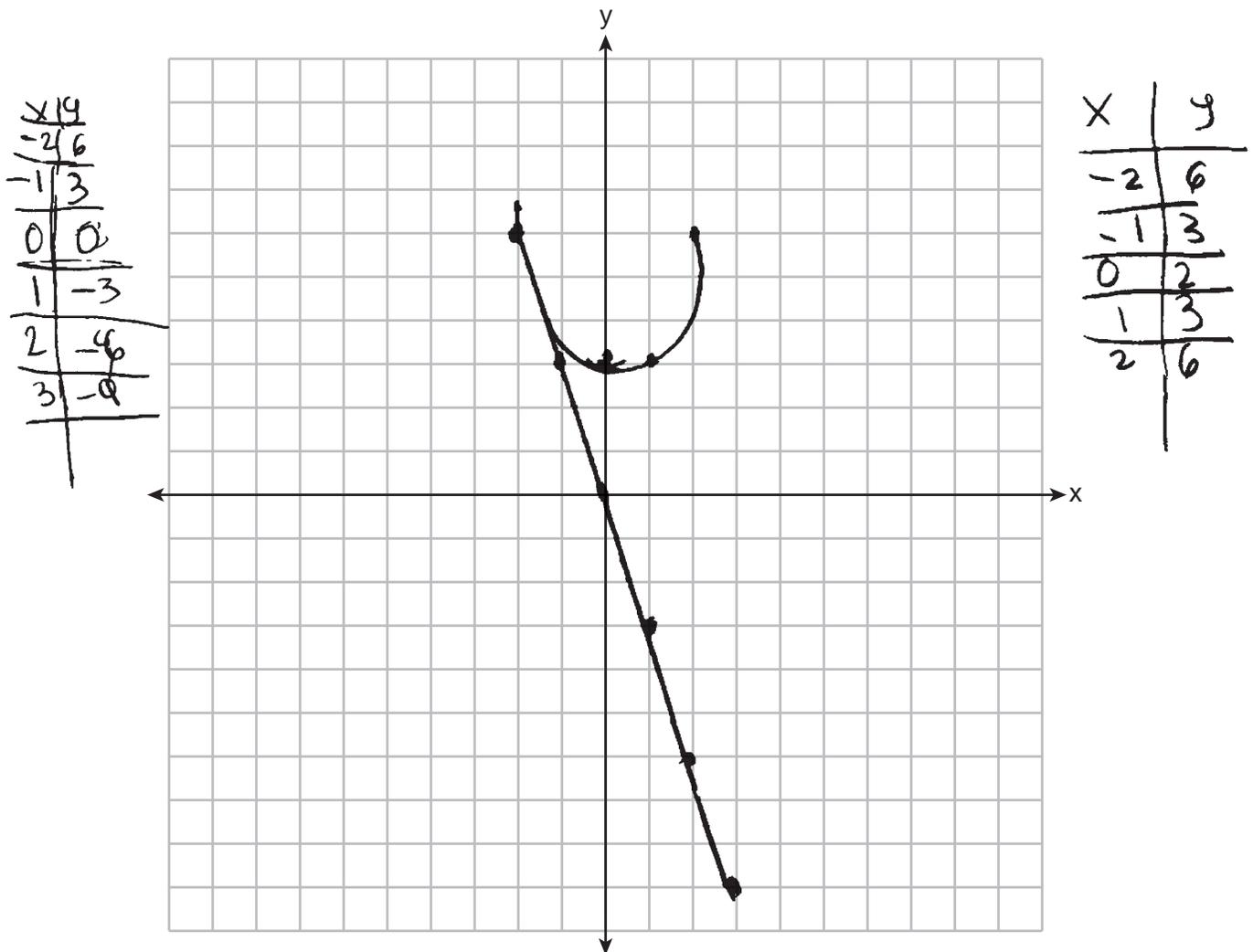State the values of x that satisfy the equation $f(x) = g(x)$.

$$-3x = x^2$$

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

Question 31

31 Graph $f(x) = -3x$ and $g(x) = x^2 + 2$ on the set of axes below.

X	Y
-2	6
-1	3
0	0
1	-3
2	-6
3	-9

X	y
-2	6
-1	3
0	2
1	3
2	6

State the values of x that satisfy the equation $f(x) = g(x)$.

Score 0:   The student did not put arrows on the line or extend the line to the end of the grid, and no further correct work was shown.

32 Using the quadratic formula, solve $6x^2 + 2x - 1 = 0$.

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

Express the answer in simplest radical form.

$$x = \frac{-2 \pm \sqrt{2^2 - 4(6)(-1)}}{2(6)}$$

$$x = \frac{-2 \pm \sqrt{4 + 24}}{12}$$

$$x = \frac{-2 \pm \sqrt{28}}{12}$$

$\sqrt{28} =$

$$\boxed{x = \frac{-2 \pm 2\sqrt{7}}{12}}$$

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

32 Using the quadratic formula, solve $6x^2 + 2x - 1 = 0$.

Express the answer in simplest radical form.

$$6x^2 + 2x - 1 = 0$$

$a = 6$

$b = 2$

$c = -1$

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

$$x = \frac{-(2) \pm \sqrt{(2)^2 - 4(6)(-1)}}{2(6)}$$

$$x = \frac{-2 \pm \sqrt{28}}{12}$$

$$x = \frac{-2 \pm 2\sqrt{7}}{12}$$

$$x = \frac{-1 \pm 1\sqrt{7}}{6}$$

$\sqrt{28}$

1   28
2   14
4   7

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

32 Using the quadratic formula, solve $6x^2 + 2x - 1 = 0$.

Express the answer in simplest radical form.

$$\frac{-(2) \pm \sqrt{(2)^2 - 4(6)(-1)}}{2(6)}$$

$$\frac{-2 \pm \sqrt{4+24}}{12} \qquad \frac{-2 \pm \sqrt{28}}{12}$$

$$\frac{-2 \pm \sqrt{4}\sqrt{7}}{12} \qquad \frac{-2 \pm 2\sqrt{7}}{12}$$

$$\boxed{\frac{-1}{6} \pm \frac{1}{6}\sqrt{7}}$$

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

32 Using the quadratic formula, solve $6x^2 + 2x - 1 = 0$.

a b c

Express the answer in simplest radical form.

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

$$X = \frac{-2 \pm \sqrt{2^2 - 4(6)(-1)}}{2(6)}$$

$$X = \frac{-2 \pm \sqrt{28}}{12}$$

$$X = \frac{-2 + \sqrt{28}}{12} \qquad X = \frac{-2 - \sqrt{28}}{12}$$

$$X = \frac{-2 + 2\sqrt{7}}{12} \qquad X = \frac{-2 - 2\sqrt{7}}{12}$$

$$\boxed{X = \frac{\sqrt{7}}{12}} \qquad \boxed{X = \frac{-4\sqrt{7}}{12}}$$

Score 3:   The student correctly found $x = \dfrac{-2 \pm 2\sqrt{7}}{12}$ but simplified incorrectly.

32 Using the quadratic formula, solve $6x^2 + 2x - 1 = 0$.

Express the answer in simplest radical form.

$$x = \frac{-2 \pm \sqrt{2^2 - 4(6)(-1)}}{2(2)}$$

$$x = \frac{-2 \pm \sqrt{4 - 24(-1)}}{4}$$

$$x = \frac{-2 \pm \sqrt{4 + 24}}{4}$$

$$x = \frac{-2 \pm \sqrt{28}}{4}$$

$$x = \frac{-2 + 2\sqrt{7}}{4} \qquad x = \frac{-2 - 2\sqrt{7}}{4} \qquad x = \frac{-2 \pm 2\sqrt{7}}{4}$$

$$x = -\frac{1}{2} + \frac{1}{2}\sqrt{7} \qquad x = -\frac{1}{2} - \frac{1}{2}\sqrt{7}$$

$$\left\{ -\frac{1}{2} + \frac{1}{2}\sqrt{7}, -\frac{1}{2} - \frac{1}{2}\sqrt{7} \right\}$$

Score 3: The student incorrectly substituted into the quadratic formula.

32 Using the quadratic formula, solve $6x^2 + 2x - 1 = 0$.

Express the answer in simplest radical form.

$$6x^2 + 2x - 1 = 0$$

$a = 6$

$b = 2$

$c = -1$

$$\frac{-2 \pm \sqrt{2^2 - 4(6)(-1)}}{2(6)}$$

$$\frac{-2 \pm \sqrt{28}}{12}$$

$$\frac{-2 \pm 4\sqrt{7}}{12}$$

$$\boxed{\frac{-2\sqrt{7}}{6}}$$

$\sqrt{28}$

$\sqrt{14 \cdot 2}$

$4\sqrt{7 \cdot 2 \cdot 2}$

$4\sqrt{7}$

Score 2: The student correctly found $\dfrac{-2 \pm \sqrt{28}}{12}$, but no further correct work was shown.

32 Using the quadratic formula, solve $6x^2 + 2x - 1 = 0$.

Express the answer in simplest radical form.

$$6x^2 + 2x - 1 = 0$$

$$\frac{-2 \pm \sqrt{(2)^2 - 4(6)(-1)}}{12}$$

$$X = \frac{-2 \pm \sqrt{5.29}}{12}$$

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

32 Using the quadratic formula, solve $6x^2 + 2x - 1 = 0$.

Express the answer in simplest radical form.

$$6x^2 + 2x - 1 = 0$$
$$x = \frac{-(2) \pm \sqrt{(2)^2 - 4(6)(1)}}{2(6)}$$
$$x = 1$$

Score 0: The student made an error in substituting into the quadratic formula.

32 Using the quadratic formula, solve $6x^2 + 2x - 1 = 0$.

Express the answer in simplest radical form.

$$x = \frac{-b \pm \sqrt{x^2 - 4Ac}}{2A}$$

$$x = \frac{-2 \pm \sqrt{x^2 - 4 \cdot 6 \cdot -1}}{2 \cdot 6}$$

$$x = \frac{-2 \pm \sqrt{x^2 + 24}}{12}$$

$$x = \frac{-2 + \sqrt{x^2 + 24}}{12} \qquad x = \frac{-2 - \sqrt{x^2 + 24}}{12}$$

$$x = \frac{-2 + x + \sqrt{24}}{12} \qquad x = \frac{-2 - x - \sqrt{24}}{12}$$

$$x = \frac{-2 + x + \sqrt{4}\sqrt{6}}{12} \qquad x = -2 - x - \sqrt{4}\sqrt{6}$$

$$x = \frac{-2 + x + 2\sqrt{6}}{12} \qquad x = \frac{-2 - x - 2\sqrt{6}}{12}$$

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

33 The table below shows the price of a new cell phone and the length of time, in months, since its release.

Time Since Release, in Months (x)	0	3	6	9	12
Price, in Dollars (y)	1200	1150	1100	1000	920

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

$$y = -23.67x + 1216$$

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

$$r = -.99$$

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

The correlation coefficient indicates that the linear fit of the data is a strong linear correlation.

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

33 The table below shows the price of a new cell phone and the length of time, in months, since its release.

Time Since Release, in Months (x)	0	3	6	9	12
Price, in Dollars (y)	1200	1150	1100	1000	920

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

$$y = -23.67 + 1216$$

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

$$-0.99$$

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

This would have a strong negative association. The more time since the release date, the less it costs.

Score 3: The student wrote -23.67 instead of $-23.67x$.

33 The table below shows the price of a new cell phone and the length of time, in months, since its release.

Time Since Release, in Months (x)	0	3	6	9	12
Price, in Dollars (y)	1200	1150	1100	1000	920

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

$$y = -23.67x + 1216$$

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

$$r = -0.99$$

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

AS the times go by, the Price will Start to decrease

Score 3: The student did not state strong.

33 The table below shows the price of a new cell phone and the length of time, in months, since its release.

Time Since Release, in Months (x)	0	3	6	9	12
Price, in Dollars (y)	1200	1150	1100	1000	920

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

$$Y = -23.\overline{6}X + 1216$$

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

$$r = 0.99$$

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

Since r=0.99, the linear fit is a very strong correlation. As time increases, the price decreases.

Score 2: The student made one rounding error and wrote $r = 0.99$ instead of $r = -0.99$.

33 The table below shows the price of a new cell phone and the length of time, in months, since its release.

Time Since Release, in Months (x)	0	3	6	9	12
Price, in Dollars (y)	1200	1150	1100	1000	920

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

$$ax + b$$
$$-23.67x + 1216$$

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

.99

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

The longer a phone is out the lower the
Price will go.

Score 1: The student wrote a correct expression.

33 The table below shows the price of a new cell phone and the length of time, in months, since its release.

Time Since Release, in Months (x)	0	3	6	9	12
Price, in Dollars (y)	1200	1150	1100	1000	920

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

$$Y = ax + b$$
$$a = -23.66666667 \quad \rightarrow = -23.7$$
$$r^2 = 0.9784549689 \rightarrow = .98$$
$$r = -0.9891688273 \rightarrow = -.99$$
$$b = 1216$$

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

.98

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

Score 1: The student made a rounding error in stating the value of a, and no further correct work was shown.

33 The table below shows the price of a new cell phone and the length of time, in months, since its release.

Time Since Release, in Months (x)	0	3	6	9	12
Price, in Dollars (y)	1200	1150	1100	1000	920

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

$$mx + b$$

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

$$-0.9$$

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

The corelation coefficient indicates how close this data is to 1.

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

33 The table below shows the price of a new cell phone and the length of time, in months, since its release.

Time Since Release, in Months (x)	0	3	6	9	12
Price, in Dollars (y)	1200	1150	1100	1000	920

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

From 50 to 100 then 80

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

It goes down over a longer period of time

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

I think that the longer since it has released the price will go down

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

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

$$\text{Substitution}$$
$$y = x^2 + 9x + 4$$
$$y - 2x = -6$$

$(x^2 + 9x + 4) - 2x = -6$

$x^2 + 7x + 4 = -6$
$\quad +6 \quad +6$
$x^2 + 7x + 10 = 0$

$(x + 5)(x + 2) = 0$

$x + 5 = 0$
$x = -5$

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

$y - 2(-2) = -6$
$y + 4 = -6$
$\quad -4 \quad -4$
$y = -10$

$y - 2(-5) = -6$
$y + 10 = -6$
$\quad -10 \quad -10$
$y = -16$

$\boxed{\begin{array}{l}(-2, -10)\\ (-5, -16)\end{array}}$

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

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

$$y = x^2 + 9x + 4$$
$$y - 2x = -6$$

$x^2 + 9x + 4 - 2x = -6$

$\qquad x^2 + 7x + 4 = -6$
$\qquad\qquad +6 \quad +6$

$\qquad\qquad x^2 + 7x + 10 = 0$
$\qquad\qquad\qquad +2.25 +2.25$

$\qquad\qquad\qquad x^2 + 7x + 12.25 = 2.25$
$\qquad\qquad\qquad \overline{(x + 3.5)^2} \quad \sqrt{2.25}$

$\qquad\qquad\qquad x + 3.5 = 1.5 \quad \text{or} \quad x + 3.5 = -1.5$
$\qquad\qquad\qquad\quad -3.5 \quad -3.5 \qquad\qquad\quad -3.5 \quad -3.5$

$\qquad\qquad\qquad\qquad x = -2 \quad \text{or} \quad x = -5$

$y - (-4) = -6$ $\qquad\qquad$ $y - (-10) = -6$

$\quad y + 4 = -6$ $\qquad\qquad\qquad$ $y + 10 = -6$
$\qquad\quad -4 \; -4$ $\qquad\qquad\qquad\quad -10 \; -10$

$\qquad\qquad y = -10$ $\qquad\qquad\qquad\qquad y = -16$

$\qquad\qquad\qquad\qquad x = -2 \quad \text{or} \quad \begin{array}{l} x = -5 \\ y = -16 \end{array}$
$\qquad\qquad\qquad\qquad y = -10$

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

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

$$y = x^2 + 9x + 4$$
$$y - 2x = -6$$

$Y = 2x - 6$

$4 - 6$

$X = \dfrac{-6 \pm \sqrt{6^2 - 4ac}}{2a}$

$2x - 6 = x^2 + 9x + 4$
$-2x \quad +6$
_____
$x^2 + 7x + 10 = 0$

$X = \dfrac{-(7) \pm \sqrt{(7)^2 - (4)(1)(10)}}{2(1)}$

$\sqrt{9}$
$3 \quad 3$

$X = \dfrac{-7 \pm \sqrt{49 - 40}}{2}$

$X = \dfrac{-7 \pm 3}{2}$ $\qquad X = -5, -2$

$-3.5 + 1.5$

Score 3: The student correctly found $x = -5$ and $x = -2$.

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

$$y = x^2 + 9x + 4$$
$$y - 2x = -6$$

$y = 2x - 6$

$2x - 6 = x^2 + 9x + 4$

$-6 = x^2 + 7x + 4$

$0 = x^2 + 7x + 10$

$Y = -10$
$X = -2$

$-10 = x^2 + 7x$

$2.25 = x^2 + 7x + 12.25$

$2.25 = (x + 3.5)^2$

$\pm\sqrt{2.25} = x + 3.5$

$-3.5 \pm \sqrt{2.25} = x$

$X = -2$

$y = -10$

Score 3: The student only found one solution.

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

$$y = x^2 + 9x + 4$$
$$y - 2x = -6$$

$y = x^2 + 9x + 4$

$y = 2x - 6$

$2x - 6 = x^2 + 9x + 4 = 2x - 6$

$x^2 + 7x + 10 = 0$

$y = (-5)^2 + 9(-5) + 4$ $\quad (x + 5)(x + 2) = 0$

$y = -16$ $\qquad\qquad x = -5 \mid x = 2$

Score 3: The student only found one solution $(-5, -16)$.

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

$$y = x^2 + 9x + 4$$
$$y - 2x = -6$$

$x^2 + 9x + 4 = 2x = -6$

$x^2 + 7x = -10$

$x^2 + 7x + 12.25 = -10 + 12.25$

$\sqrt{(x + 3.5)^2} = \sqrt{2\frac{1}{4}}$

$x + 3.5 = \sqrt{2\frac{1}{4}}$
$-3.5 \quad -3.5$
$x = -3.5 \pm \sqrt{2\frac{1}{4}}$

Score 2: The student correctly found $(x + 3.5)^2 = 2.25$.

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

$$y = x^2 + 9x + 4$$
$$y - 2x = -6$$

$$X^2 + 9X + 4 - 2X = -6$$

$$X^2 + 7X + 4 = -6$$
$$\underline{ +6 \quad +6}$$
$$X^2 + 7X + 10 = 0$$
$$-10 \quad -10$$

$$\frac{X^2 + 7X}{7} = \frac{-10}{7}$$

$$\sqrt{X^2_{+X}} = \sqrt{-1.4}$$

$$\frac{2X}{2} \frac{\sqrt{-1.2}}{2}$$

$$X = \frac{\sqrt{1.2}}{2}$$

Score 1: The student wrote $x^2 + 7x + 10 = 0$.

---

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

$$\frac{9^2 - 4.5^2 = 2 \times 25}{2}$$

$0 = (x^2 + 9x + 20.25) + 4 - 20.25$

$(4.5, -16.25)$

$$y = x^2 + 9x + 4$$
$$y - 2x = -6$$

$$y - 2x = -6$$
$$+2x \quad +2x$$

$$0 = 2x - 6$$
$$+6 \quad +6$$

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

$x = 3$

$Y - 2(3) = -6$

$Y - 6 = -6$
$+6 \quad +6$

$Y = 0$

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

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

$$y = x^2 + 9x + 4$$
$$y - 2x = -6$$

Y =
Plot
2nd table

Y = x² + 9x + 4

$Y = x^2 + 9x + 4$

$Y - 2x = -6$
$+2x \quad +2x$
$Y = 2x - 6$

X	Y
-2	-10
-1	-4
0	4
1	14
2	26

$Y - 2x = -6$

X	Y
-2	-10
-1	-8
0	-6
1	-4
2	-2

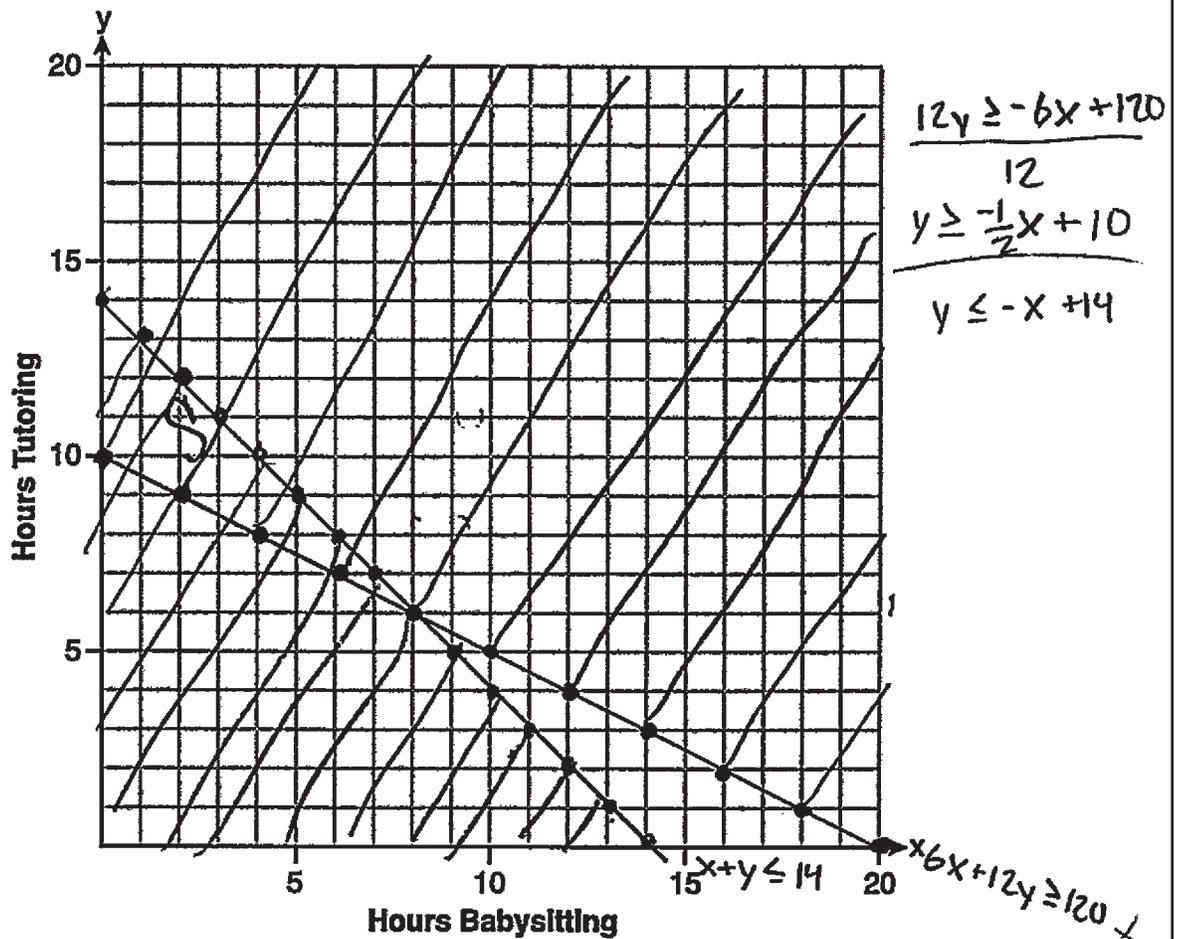**Score 0:** The student did not show enough correct work to receive any credit.

35 Sarah earns $6 per hour babysitting and $12 per hour tutoring. Her goal is to earn at least $120 per week. Sarah is allowed to work a maximum of 14 hours per week doing both jobs.

If x represents the number of hours Sarah babysits and y represents the number of hours she tutors, write a system of inequalities that could model this situation.

$$6x + 12y \geq 120$$
$$x + y \leq 14$$

On the set of axes below, graph the system of inequalities that you wrote.

$x + y \leq 14$
$y \leq -x + 14$

$(0, 0)$
$x + y \leq 14$
$0 + 0 \leq 14$
$0 \leq 14 ✓$
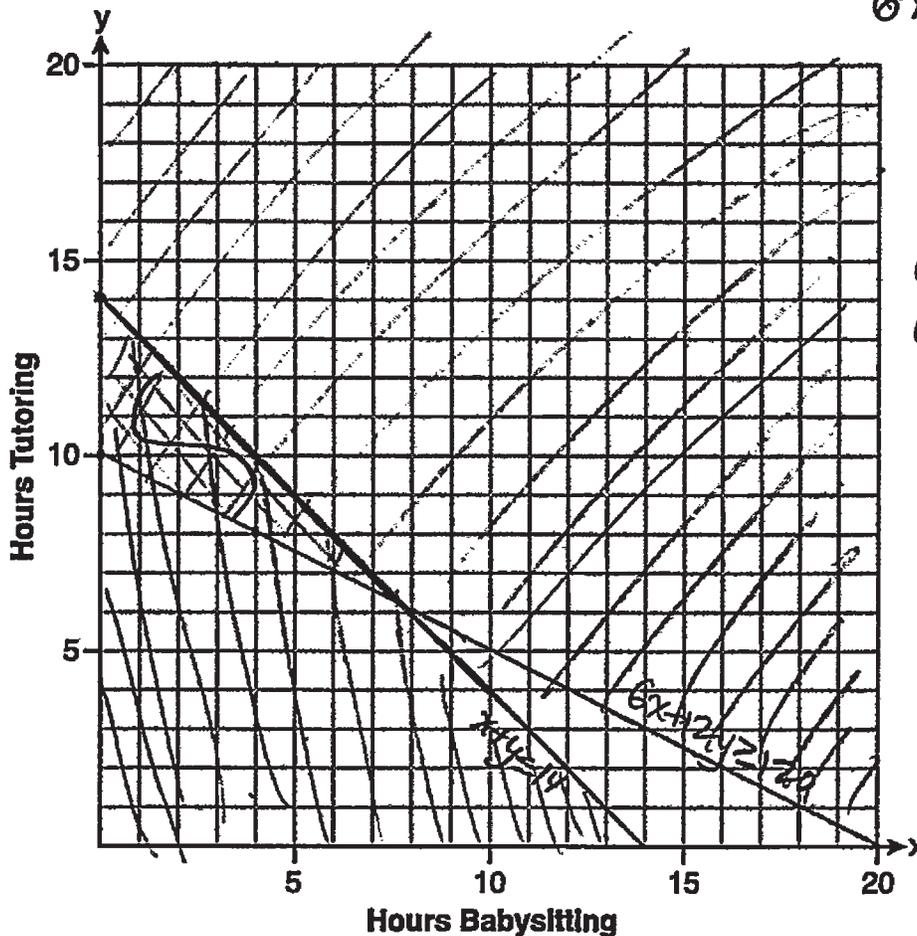
$6x + 12y \geq 120$
$12y \geq -6x + 120$
$y \geq -\frac{1}{2}x + 10$

$(0, 0)$
$6x + 12y \geq 120$
$6(0) + 12(0) \geq 120$
$0 \geq 120$

Hours Tutoring (y-axis)
Hours Babysitting (x-axis)

Question 35 is continued on the next page.

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

Question 35 continued

State a combination of hours babysitting and tutoring that would satisfy this situation. Justify your answer.

$(5,8)$ 5 hours babysitting, 8 hours tutoring

$x + y \leq 14$

$5 + 8 \leq 14$

$13 \leq 14$ ✓

$6x + 12y \geq 120$

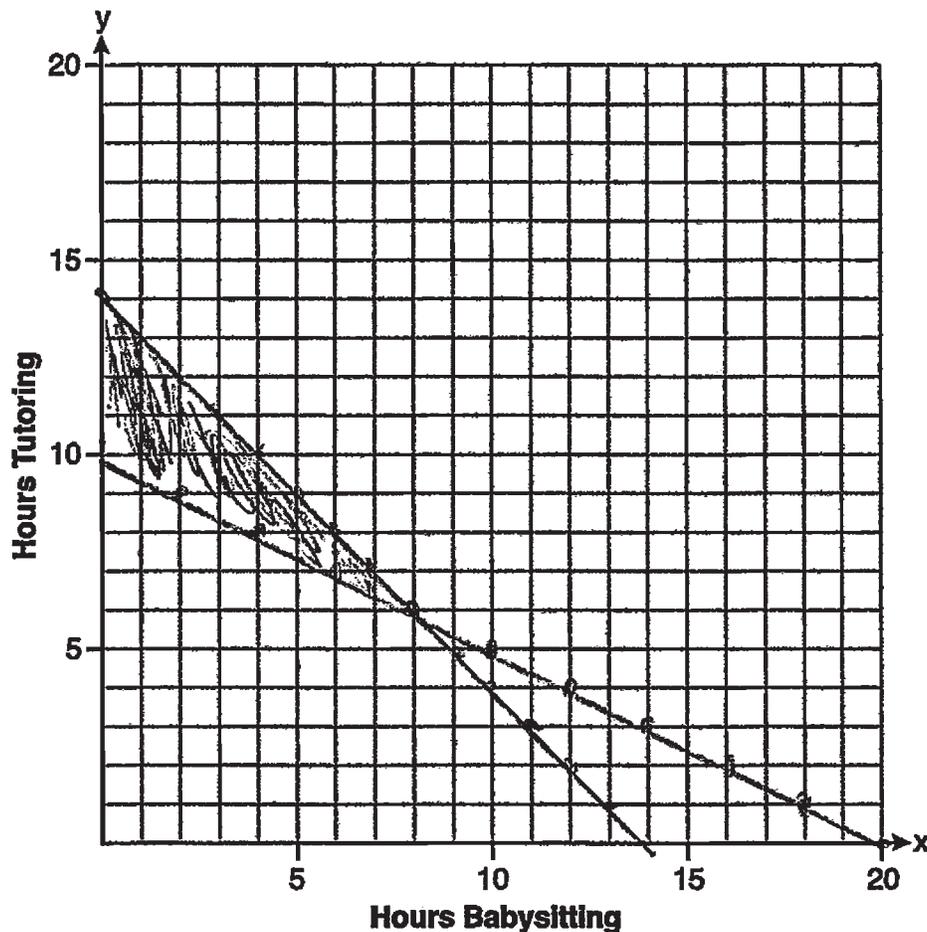$6(5) + 12(8) \geq 120$

$30 + 96 \geq 120$

$126 \geq 120$ ✓

35 Sarah earns $6 per hour babysitting and $12 per hour tutoring. Her goal is to earn at least $120 per week. Sarah is allowed to work a maximum of 14 hours per week doing both jobs.

If x represents the number of hours Sarah babysits and y represents the number of hours she tutors, write a system of inequalities that could model this situation.

$x = $ hours Bab
$y = $ hours Tut

$$6x + 12y \geq 120$$
$$x + y \leq 14$$

On the set of axes below, graph the system of inequalities that you wrote.

$$\frac{12y \geq -6x + 120}{12}$$
$$y \geq \tfrac{-1}{2}x + 10$$

$$y \leq -x + 14$$

Hours Tutoring

Hours Babysitting

$x + y \leq 14$

$6x + 12y \geq 120$

Question 35 is continued on the next page.

Score 5: The student did not give a justification.

Question 35 continued

State a combination of hours babysitting and tutoring that would satisfy this situation. Justify your answer.

∴ 3 hours babysitting
10 hours tutoring

35 Sarah earns $6 per hour babysitting and $12 per hour tutoring. Her goal is to earn at least $120 per week. Sarah is allowed to work a maximum of 14 hours per week doing both jobs.

If x represents the number of hours Sarah babysits and y represents the number of hours she tutors, write a system of inequalities that could model this situation.

$$x + y \leq 14$$

$$6x + 12y \geq 120$$

On the set of axes below, graph the system of inequalities that you wrote.

Hours Tutoring (y-axis), **Hours Babysitting** (x-axis)

Question 35 is continued on the next page.

Score 5: The student did not label at least one inequality.

Question 35 continued

State a combination of hours babysitting and tutoring that would satisfy this situation. Justify your answer.

If she babysits for 1 hour and tutors for 11 she will meet her goal because the point (1,11) is in the solution set.

35 Sarah earns $6 per hour babysitting and $12 per hour tutoring. Her goal is to earn at least $120 per week. Sarah is allowed to work a maximum of 14 hours per week doing both jobs.

If x represents the number of hours Sarah babysits and y represents the number of hours she tutors, write a system of inequalities that could model this situation.

$$6x + 12y \geq 120$$
$$x + y \leq 14$$

On the set of axes below, graph the system of inequalities that you wrote.
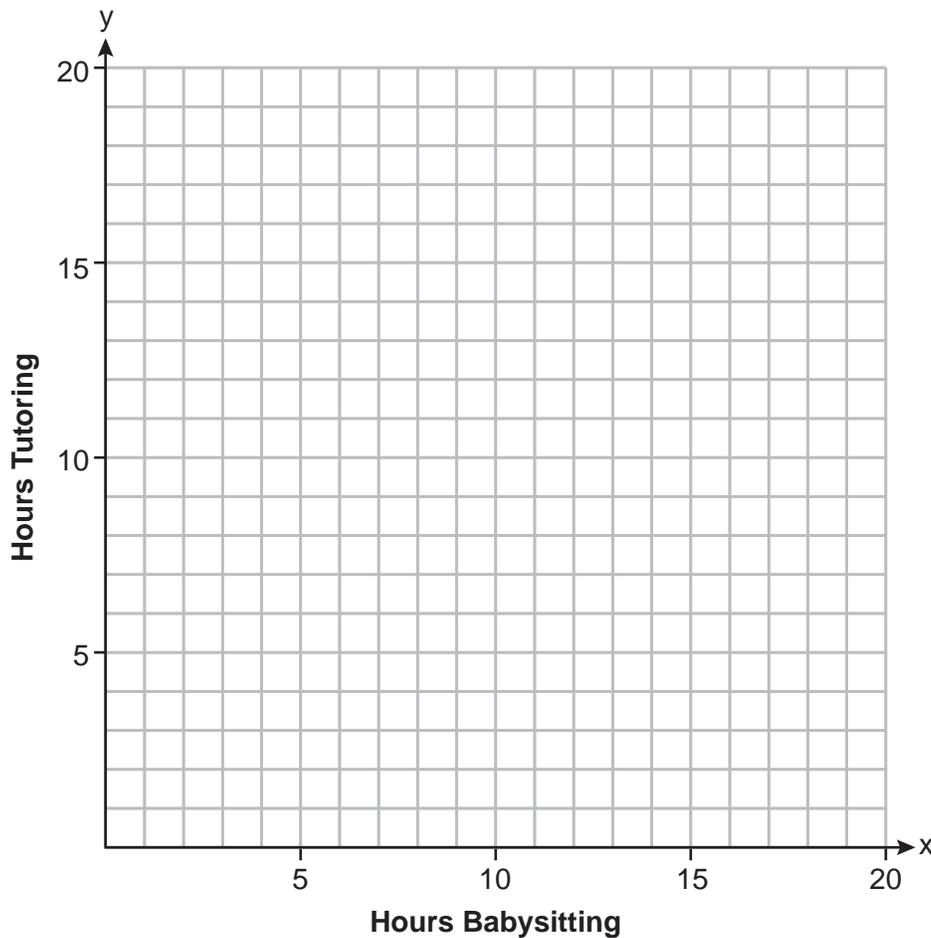
Hours Babysitting

Score 4: The student did not graph the system of inequalities.

Question 35 continued

State a combination of hours babysitting and tutoring that would satisfy this situation. Justify your answer.

$x = 6$ $y = 8$ This works because they add up to 14 and when you plug them into the top equation, you get 132.

35 Sarah earns $6 per hour babysitting and $12 per hour tutoring. Her goal is to earn at least $120 per week. Sarah is allowed to work a maximum of 14 hours per week doing both jobs.

If x represents the number of hours Sarah babysits and y represents the number of hours she tutors, write a system of inequalities that could model this situation.
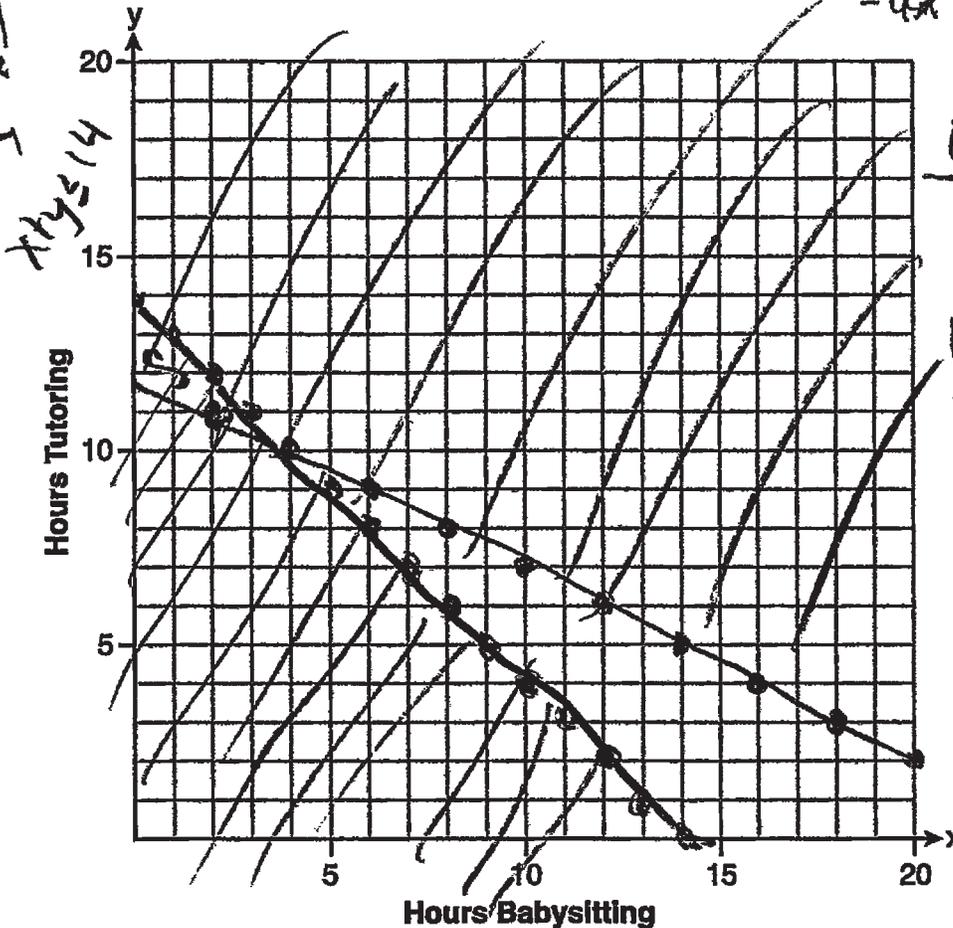
$$x + y \leq 14$$
$$6x + 12y \geq 120$$

Let $x =$ hours of babysitting

Let $y =$ hours of tutoring

$$6x + 12y \geq 120$$
$$-6x \qquad -6x$$

On the set of axes below, graph the system of inequalities that you wrote.

$$x + y \leq 14$$
$$-x \quad -x$$
$$y \leq -x + 14$$

$$\frac{12y}{12} \geq \frac{120 - 6x}{12}$$

$$y \geq -\frac{1}{2}x + 12$$

$x + y \leq 14$

Hours Tutoring / Hours Babysitting

Question 35 is continued on the next page.

Score 3: The student wrote a correct system of inequalities and graphed one inequality correctly.

Question 35 continued

State a combination of hours babysitting and tutoring that would satisfy this situation. Justify your answer.
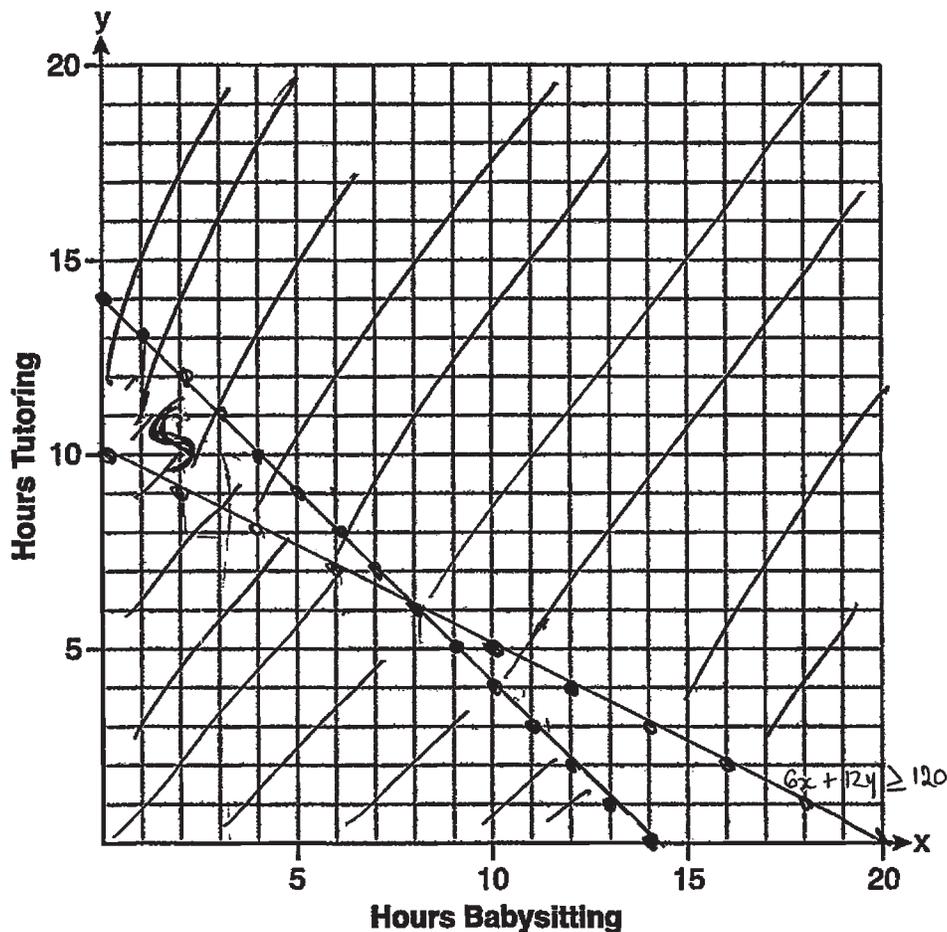
1 hour babysitting and
14 hours tutoring

35 Sarah earns $6 per hour babysitting and $12 per hour tutoring. Her goal is to earn at least $120 per week. Sarah is allowed to work a maximum of 14 hours per week doing both jobs.

If x represents the number of hours Sarah babysits and y represents the number of hours she tutors, write a system of inequalities that could model this situation.

$$6x + 12y \geq 120$$
$$x + y < 14$$

$$12y \geq 120 - 6x$$
$$y \geq 10 - \tfrac{1}{2}x$$
$$y < 14 - x$$

On the set of axes below, graph the system of inequalities that you wrote.

Hours Tutoring (y-axis) vs Hours Babysitting (x-axis)

$6x + 12y \geq 120$

Question 35 is continued on the next page.

Score 3: The student wrote, graphed, and labeled one inequality correctly and stated a correct combination of hours, but did not justify their answer.

Question 35 continued

State a combination of hours babysitting and tutoring that would satisfy this situation. Justify your answer.
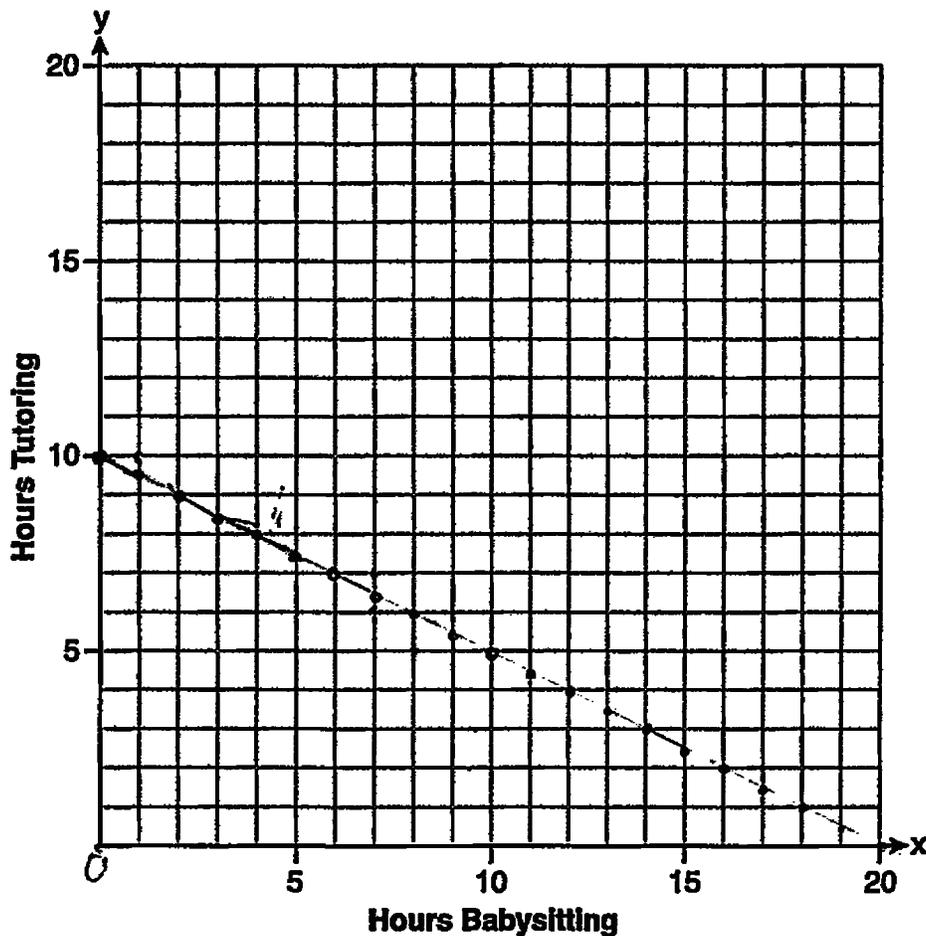
2 hours babysitting
12 hours tutoring

35 Sarah earns $6 per hour babysitting and $12 per hour tutoring. Her goal is to earn at least $120 per week. Sarah is allowed to work a maximum of 14 hours per week doing both jobs.

If x represents the number of hours Sarah babysits and y represents the number of hours she tutors, write a system of inequalities that could model this situation.

$12t + 6b \geq 120$

$t + b \leq 14$

On the set of axes below, graph the system of inequalities that you wrote.

Hours Babysitting

Question 35 is continued on the next page.

Score 2: The student wrote an appropriate system of inequalities using incorrect variables and stated a correct combination of hours.

Question 35 continued

State a combination of hours babysitting and tutoring that would satisfy this situation. Justify your answer.
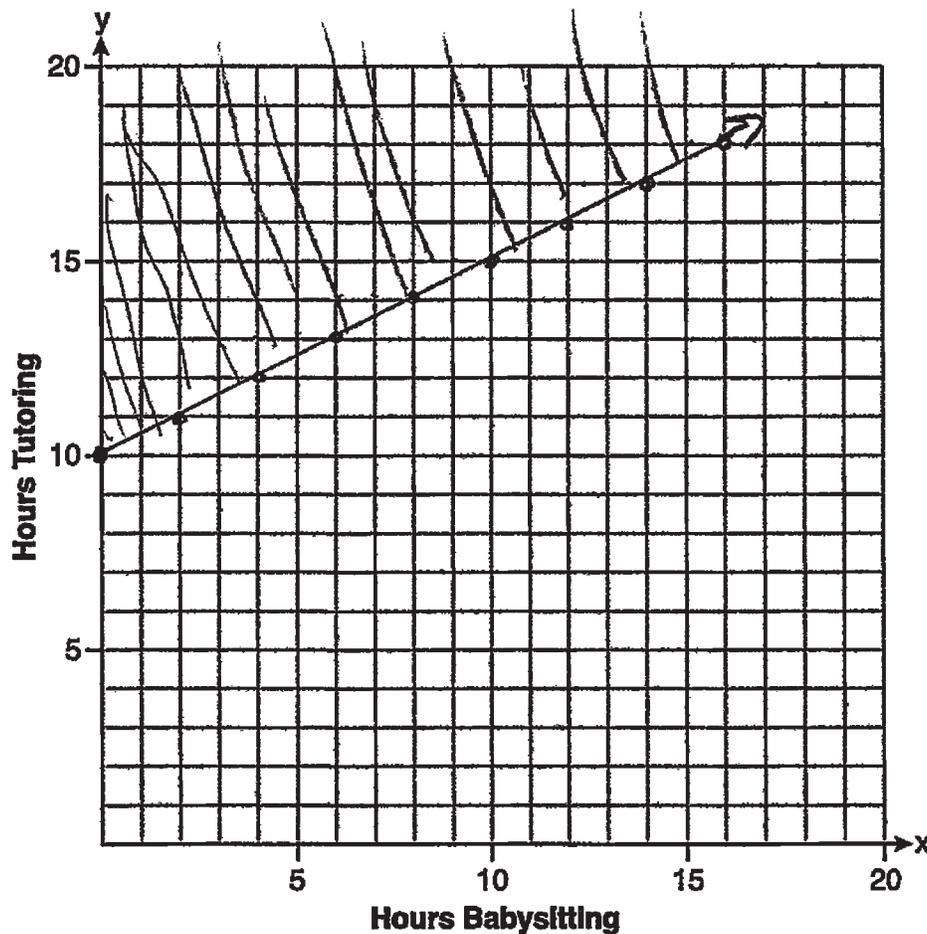
0 hr. babysitting & 10 hr. tutoring.

35 Sarah earns $6 per hour babysitting and $12 per hour tutoring. Her goal is to earn at least $120 per week. Sarah is allowed to work a maximum of 14 hours per week doing both jobs.

If x represents the number of hours Sarah babysits and y represents the number of hours she tutors, write a system of inequalities that could model this situation.

$$6x + 12y \geq 120$$

$$6(7) + 12(7) \geq 120 \quad \cancel{y \leq x}$$

$$y = mx + b$$

$$\frac{12y}{12} \geq \frac{6x + 120}{12}$$

$$y \geq \tfrac{1}{2}x + 10$$

On the set of axes below, graph the system of inequalities that you wrote.

Hours Tutoring (y-axis)

Hours Babysitting (x-axis)

Question 35 is continued on the next page.

Score 1: The student wrote one correct inequality.

Question 35 continued

State a combination of hours babysitting and tutoring that would satisfy this situation.
Justify your answer.

35 Sarah earns $6 per hour babysitting and $12 per hour tutoring. Her goal is to earn at least $120 per week. Sarah is allowed to work a maximum of 14 hours per week doing both jobs.
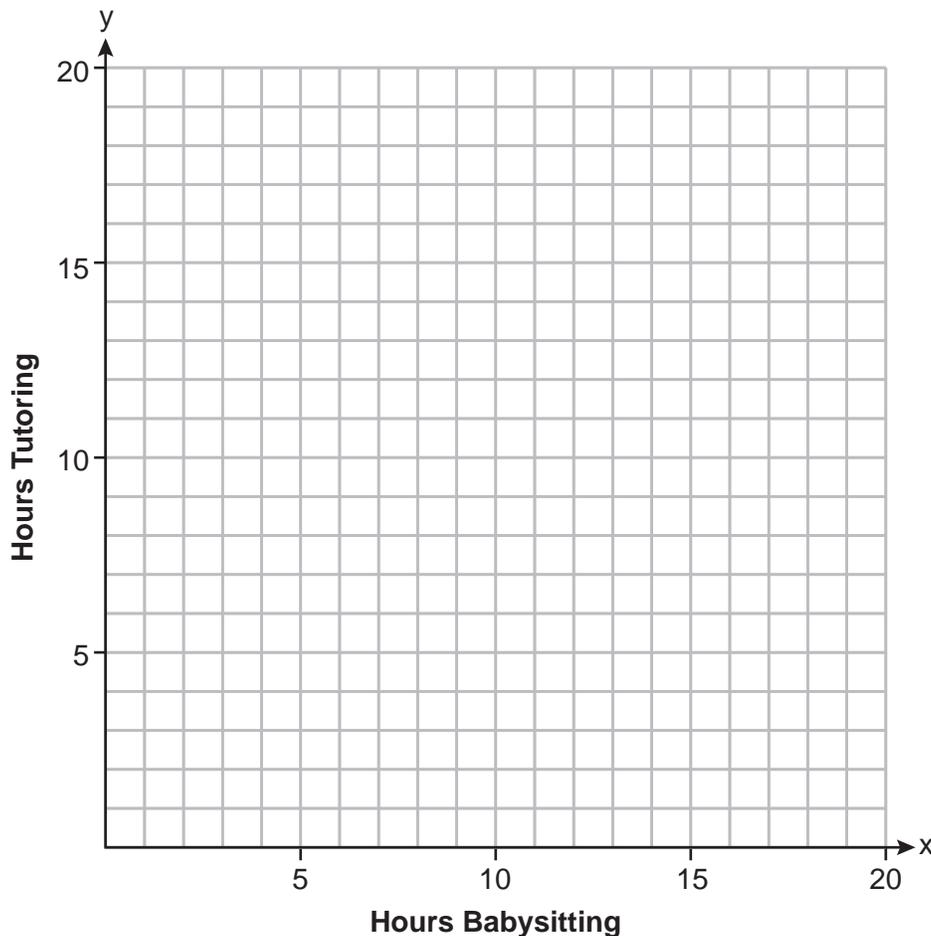
If x represents the number of hours Sarah babysits and y represents the number of hours she tutors, write a system of inequalities that could model this situation.

$$x + y = 14$$
$$6x + 12y = 120$$

$$\underset{-6x}{6x} + 12y = 120 \quad -6x$$
$$\frac{12y}{12} = \frac{120}{12} \frac{-6x}{12}$$
$$y = 10 - 0.5x$$

On the set of axes below, graph the system of inequalities that you wrote.

Hours Tutoring

Hours Babysitting

Question 35 is continued on the next page.

Score 1: The student wrote correct equations.

Question 35 continued

State a combination of hours babysitting and tutoring that would satisfy this situation. Justify your answer.

35 Sarah earns $6 per hour babysitting and $12 per hour tutoring. Her goal is to earn at least $120 per week. Sarah is allowed to work a maximum of 14 hours per week doing both jobs.
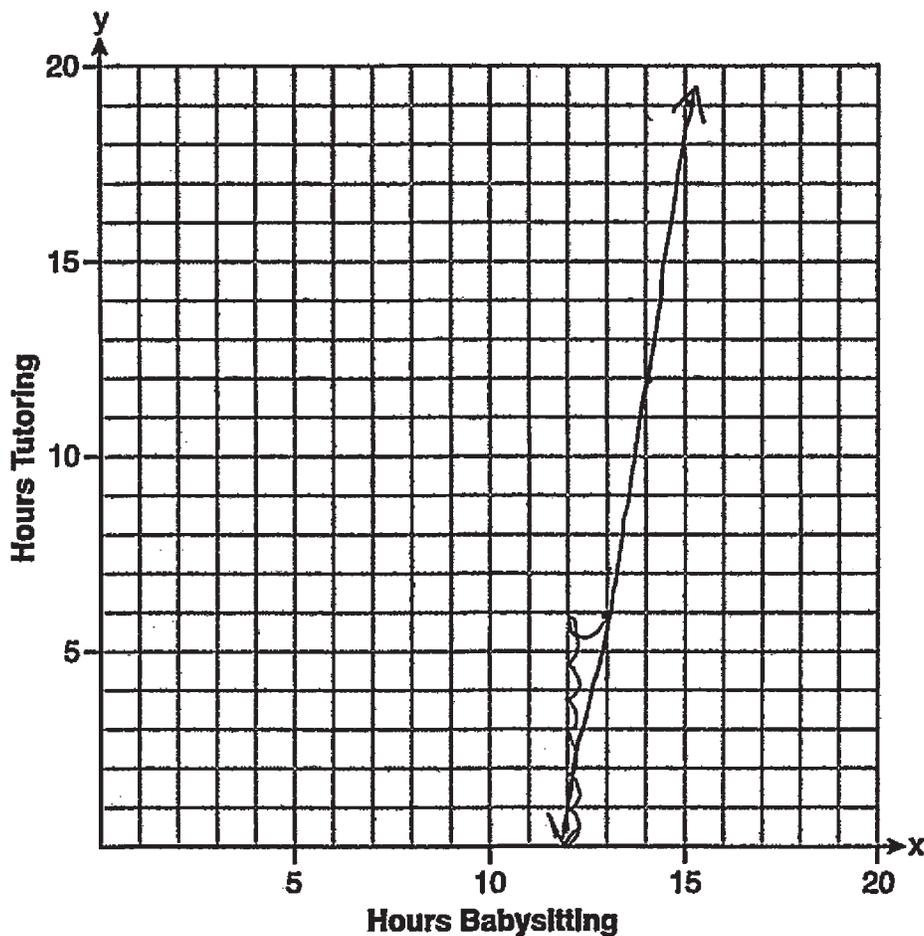
If x represents the number of hours Sarah babysits and y represents the number of hours she tutors, write a system of inequalities that could model this situation.

$x = $ # of hours babysitting
$y = $ # of hours tutoring

$6x + 12y =$ $\boxed{y = 12 + 6x}$

On the set of axes below, graph the system of inequalities that you wrote.

Hours Babysitting

Question 35 is continued on the next page.

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

Question 35 continued

State a combination of hours babysitting and tutoring that would satisfy this situation. Justify your answer.

$6(2)=12$
$12(2)$

$6(10) = 60 = ^\$120$
$12(5) = 60$

10 hours babysitting and 5 hours tutoring to get $120
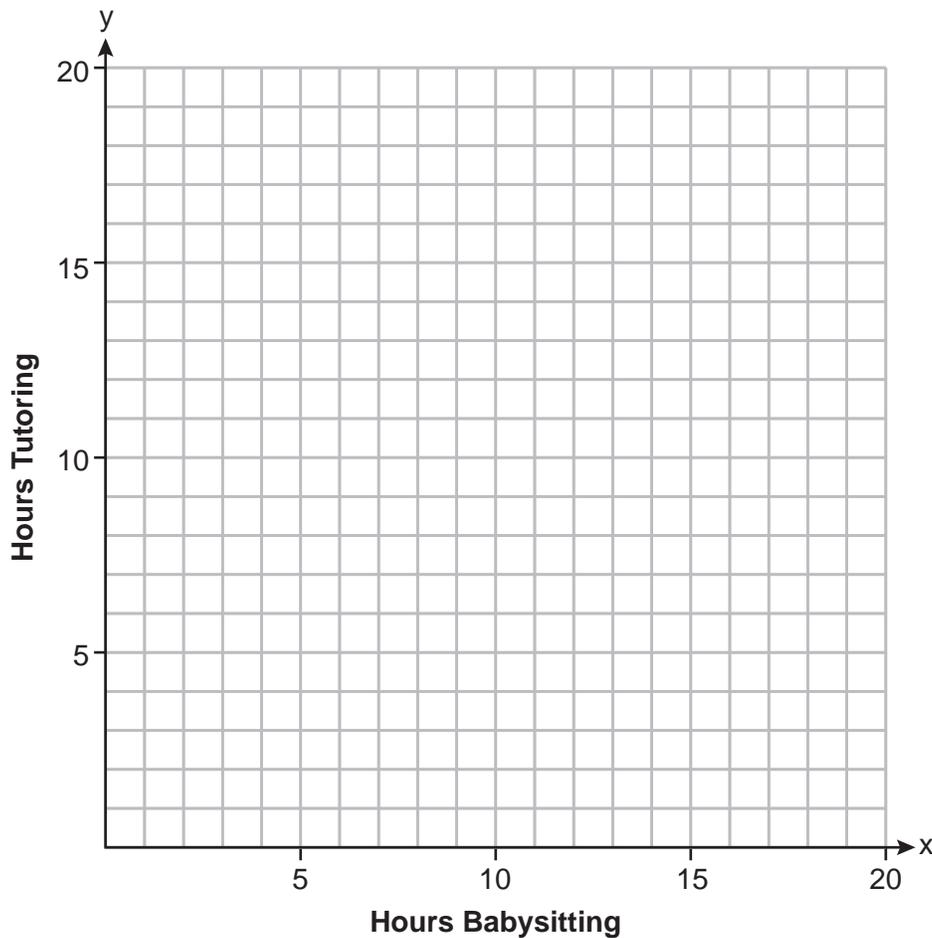
35 Sarah earns $6 per hour babysitting and $12 per hour tutoring. Her goal is to earn at least $120 per week. Sarah is allowed to work a maximum of 14 hours per week doing both jobs.

If x represents the number of hours Sarah babysits and y represents the number of hours she tutors, write a system of inequalities that could model this situation.

$$6x + 12y > 120$$

On the set of axes below, graph the system of inequalities that you wrote.

Hours Tutoring

Hours Babysitting

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

Question 35 continued

State a combination of hours babysitting and tutoring that would satisfy this situation. Justify your answer.

The State Education Department / The University of the State of New York

Regents Examination in Algebra I – JUNE 2025

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

(Use for the June 2025 exam only.)

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