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

ALGEBRA I

Wednesday, January 22, 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 When factored, the expression $x^3 - 36x$ is equivalent to

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

(2) $(x + 18)(x - 18)$

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

(4) $x(x + 18)(x - 18)$

2 Which equation represents the line that passes through the points $(-1,8)$ and $(4,-2)$?

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

(2) $y = -2x + 10$

(3) $y = -0.5x + 7.5$

(4) $y = -0.5x + 8.5$

3 A geometric sequence is shown below.

$$\frac{1}{2}, 2, 8, 32, \ldots$$

What is the common ratio?

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

(2) 2

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

(4) 4

4 What is the constant term of the polynomial $2x^3 - x + 5 + 4x^2$?

(1) 5

(2) 2

(3) 3

(4) 4

Use this space for computations.

5 A landscaping company charges a set fee for a spring cleanup, plus an hourly labor rate. The total cost is modeled by the function $C(x) = 55x + 80$. In this function, what does the 55 represent?

(1) the set fee for the cleanup

(2) the hourly labor rate for a cleanup

(3) the profit earned by the company for one cleanup

(4) the number of hours of labor required for one cleanup

6 Which expression is equivalent to $(5x^2 - 2x + 4) - (3x^2 + 3x - 1)$?

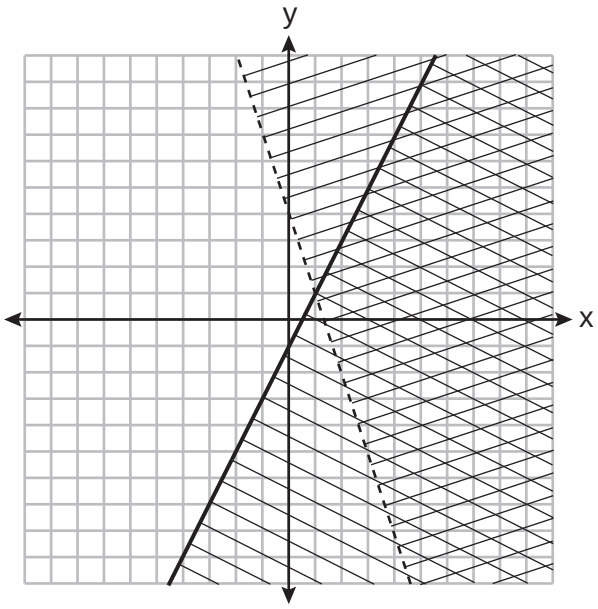
(1) $2x^2 + x + 3$

(2) $2x^2 - 5x + 5$

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

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

7 A system of inequalities is graphed on the set of axes below.



Which point is a solution to this system?

(1) (1,1)

(2) (2,−2)

(3) (1,8)

(4) (4,2)

Use this space for computations.

8 In an arithmetic sequence, the first term is 25 and the third term is 15. What is the tenth term in this sequence?

(1) -20

(2) -25

(3) 70

(4) 75

9 When the formula $p = 2l + 2w$ is solved for w, the result is

(1) $w = \frac{2l + p}{2}$

(2) $w = \frac{p - 2l}{2}$

(3) $w = \frac{p}{2} + l$

(4) $w = l - \frac{p}{2}$

10 Market Street Pizza kept a record of pizza sales for the month of February. The results are shown in the table below.

Type	Plain	Veggie	Meat Only	The Works
Thin Crust	300	80	120	100
Deep-dish	200	25	105	70

Of all the pizzas sold in February, what percent were plain, deep-dish pizzas?

(1) 20%

(2) 30%

(3) 40%

(4) 50%

11 When solving $-2(3x - 5) = \frac{9}{2}x - 2$ for x, the solution is

(1) $\frac{8}{7}$

(2) $\frac{10}{11}$

(3) $-\frac{16}{21}$

(4) $-\frac{16}{3}$

Use this space for computations.

12 The expression x^{2a+b} is equivalent to

(1) $x^{2a} + x^b$

(2) $x^a + x^{a+b}$

(3) $x^a \bullet x^{a+b}$

(4) $x^{a+b} \bullet x^{a+b}$

13 The inputs and outputs of a function are shown in the table below.

x	f(x)
0	0.0625
1	0.125
2	0.25
3	0.5
4	1
5	2

This function can best be described as

(1) linear

(2) quadratic

(3) exponential

(4) absolute value

14 Stephanie is solving the equation $x^2 - 12 = 7x - 8$. Her first step is shown below.

Given: $x^2 - 12 = 7x - 8$

Step 1: $x^2 - 4 = 7x$

Which property justifies her first step?

(1) associative property

(2) commutative property

(3) distributive property

(4) addition property of equality

15 What is the sum of $8\sqrt{3}$ and $\sqrt{3}$?

(1) $8\sqrt{6}$

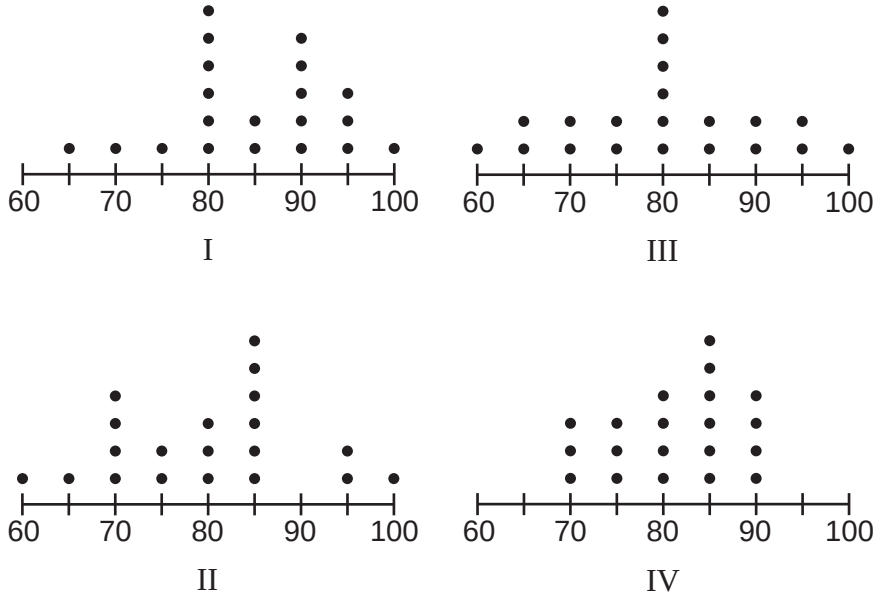
(2) $9\sqrt{6}$

(3) $7\sqrt{3}$

(4) $9\sqrt{3}$

Use this space for computations.

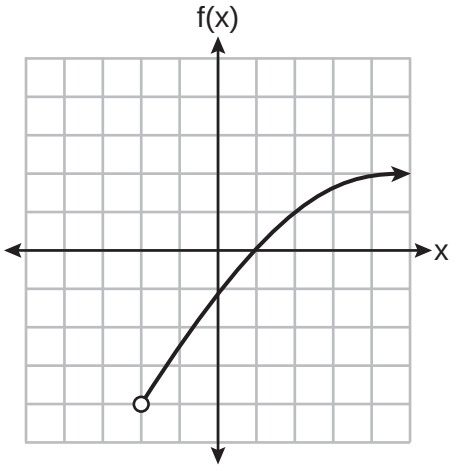
16 The dot plots below represent test scores for 20 students on a math test.



The mode for this math test is 80 and the median is 85. Which dot plot correctly represents this data?

(1) I
(2) II
(3) III
(4) IV

17 A function is graphed on the set of axes below.



The domain of this function is

(1) $\{x|x > -2\}$
(2) $\{x|x \geq -2\}$
(3) $\{x|x > -4\}$
(4) $\{x|x \geq -4\}$

Use this space for computations.

18 Which ordered pair is a solution to the equation $y - 1 = 2\left(x + \frac{1}{4}\right)$?

(1) (0.75, 0)

(2) (1.25, 4)

(3) (2.5, −6.5)

(4) (4, −9.5)

19 Elena's fastest time for the 50-meter dash is 7 seconds. She wants to know how fast this is in inches per minute. Which expression can Elena use for a correct conversion?

(1) $\frac{7 \text{ sec}}{50 \text{ meters}} \bullet \frac{60 \text{ sec}}{1 \text{ min}} \bullet \frac{1 \text{ meter}}{39.37 \text{ in}}$

(2) $\frac{7 \text{ sec}}{50 \text{ meters}} \bullet \frac{1 \text{ min}}{60 \text{ sec}} \bullet \frac{39.37 \text{ in}}{1 \text{ meter}}$

(3) $\frac{50 \text{ meters}}{7 \text{ sec}} \bullet \frac{60 \text{ sec}}{1 \text{ min}} \bullet \frac{1 \text{ meter}}{39.37 \text{ in}}$

(4) $\frac{50 \text{ meters}}{7 \text{ sec}} \bullet \frac{60 \text{ sec}}{1 \text{ min}} \bullet \frac{39.37 \text{ in}}{1 \text{ meter}}$

20 The table below shows the highest temperatures recorded in August for several years in one town.

Year	Temperature (°F)
1990	86
1991	78
1992	84
1993	95
1994	81
1995	77
1996	88
1997	93

The interquartile range of these data is

(1) 7

(2) 10

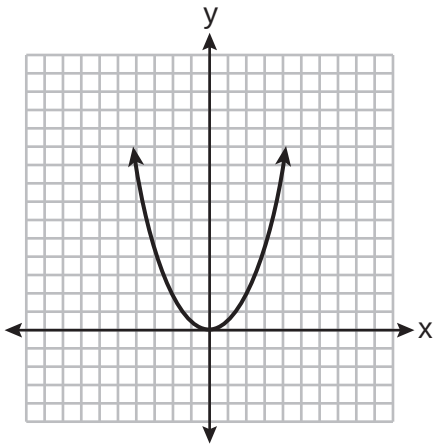
(3) 11

(4) 18

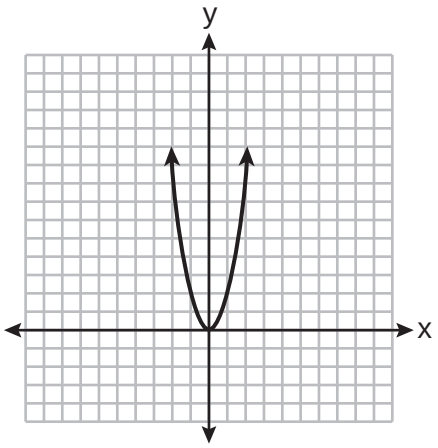
Use this space for computations.

21 The function $f(x) = x^2$ is multiplied by k, where $k < -1$. Which graph could represent $g(x) = kf(x)$?

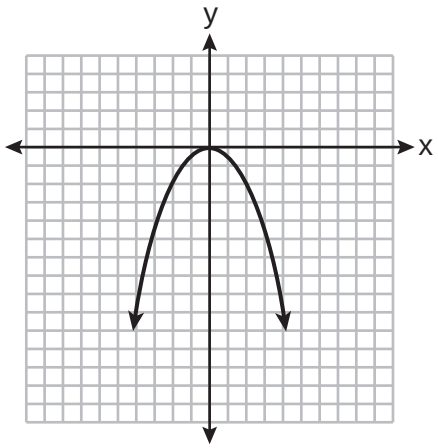
(1)



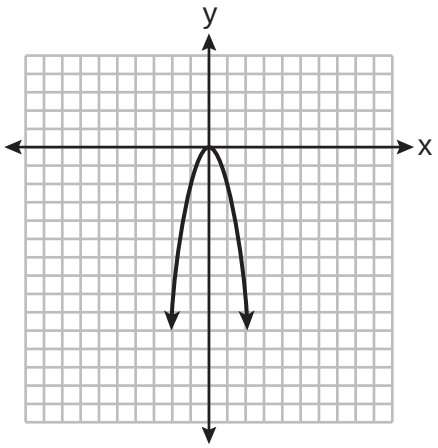
(3)



(2)

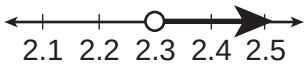


(4)

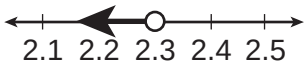


22 Which graph is the solution to the inequality $6.4 - 4x \geq -2.8$?

(1)



(3)



(2)

(4)

Use this space for computations.

23 The number of fish in a pond is eight more than the number of frogs. The total number of fish and frogs in the pond is at least 20. If x represents the number of frogs, which inequality can be used to represent this situation?

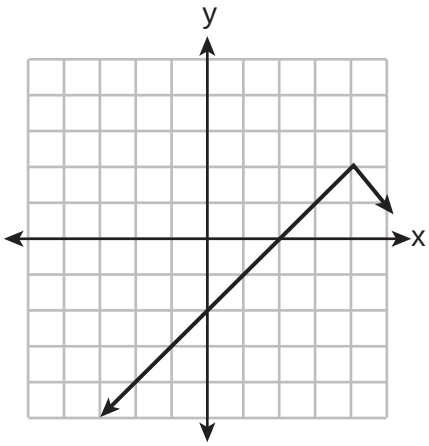
(1) $x + 8x \geq 20$

(2) $2x + 8 \geq 20$

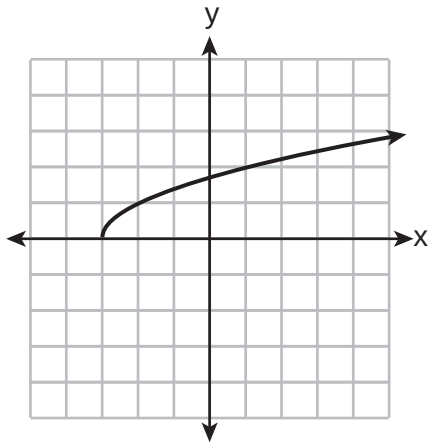
(3) $x + 8x \leq 20$

(4) $2x + 8 \leq 20$

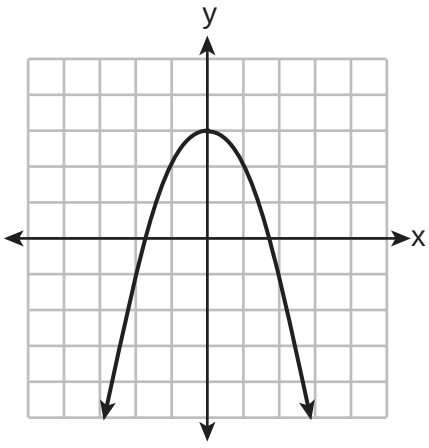
24 Which graph below represents a function that is always *decreasing* over the entire interval $-3 < x < 3$?



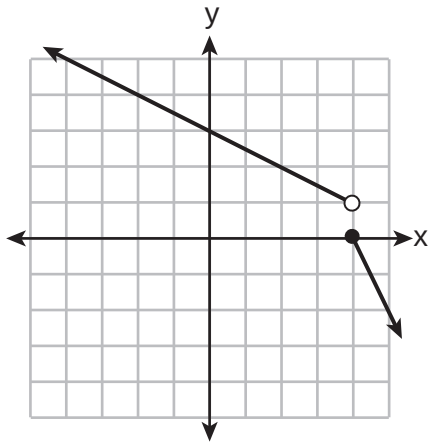
(1)



(3)



(2)

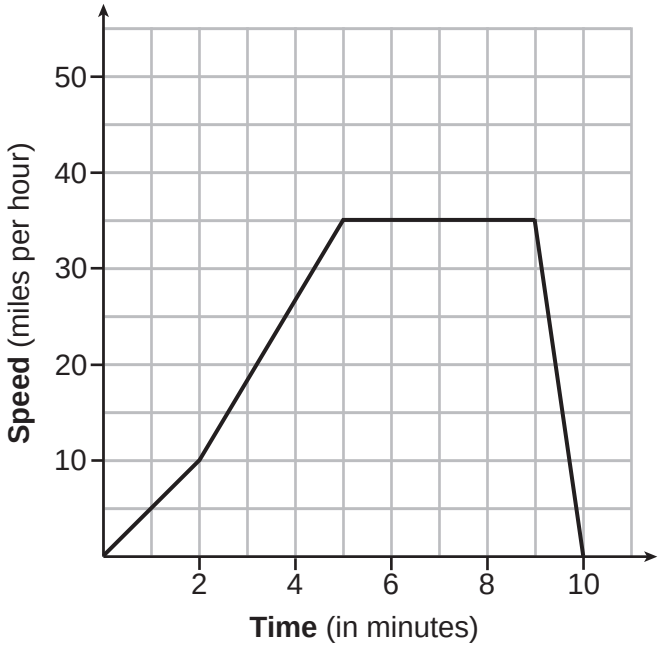


(4)

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]

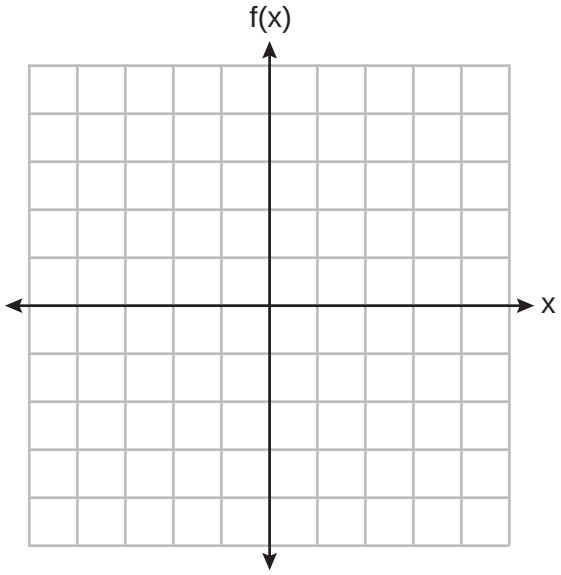
25 The graph below models Sally's drive to the store.



State an interval when Sally is traveling at a constant speed.

Explain your reasoning.

26 Graph the function $f(x) = x^2 + 4x + 3$.



State the equation of the axis of symmetry of $f(x)$.

27 The function $f(x)$ is shown in the table below.

x	0	3	2	6	1	5	4	m
f(x)	6	2	7	5	8	4	3	9

State an appropriate value for m in the table, so that $f(x)$ remains a function.

Explain your reasoning.

28 Solve $x^2 + 8x = 33$ for x by completing the square.

29 If $f(x) = \frac{-3x - 5}{2}$, algebraically determine the value of x when $f(x) = -22$.

30 Rationalize the denominator of the fraction below. Express the solution in simplest form.

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

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 Alex had \$1.70 in nickels and dimes on his desk. There were 25 coins in all.

Write a system of equations that could be used to determine both the number of nickels, n, and the number of dimes, d, that Alex had.

Use your system of equations to algebraically determine both the number of nickels and the number of dimes that he had.

32 The table below shows the average heart rate, x, and Calories burned, y, for seven men on an Olympic rowing team during a one-hour workout class.

Average Heart Rate (x)	135	147	150	144	146	153	143
Calories Burned (y)	725	812	866	761	825	863	737

Write the linear regression equation that models these data, rounding all values to the *nearest tenth*.

State the correlation coefficient, rounded to the *nearest tenth*.

State what the correlation coefficient suggests about the linear fit of these data.

33 Using the quadratic formula, solve $x^2 + 4x - 3 = 0$.

Express your solution in simplest radical form.

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

$$y = x^2 - 7x + 12$$

$$y = 2x - 6$$

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]

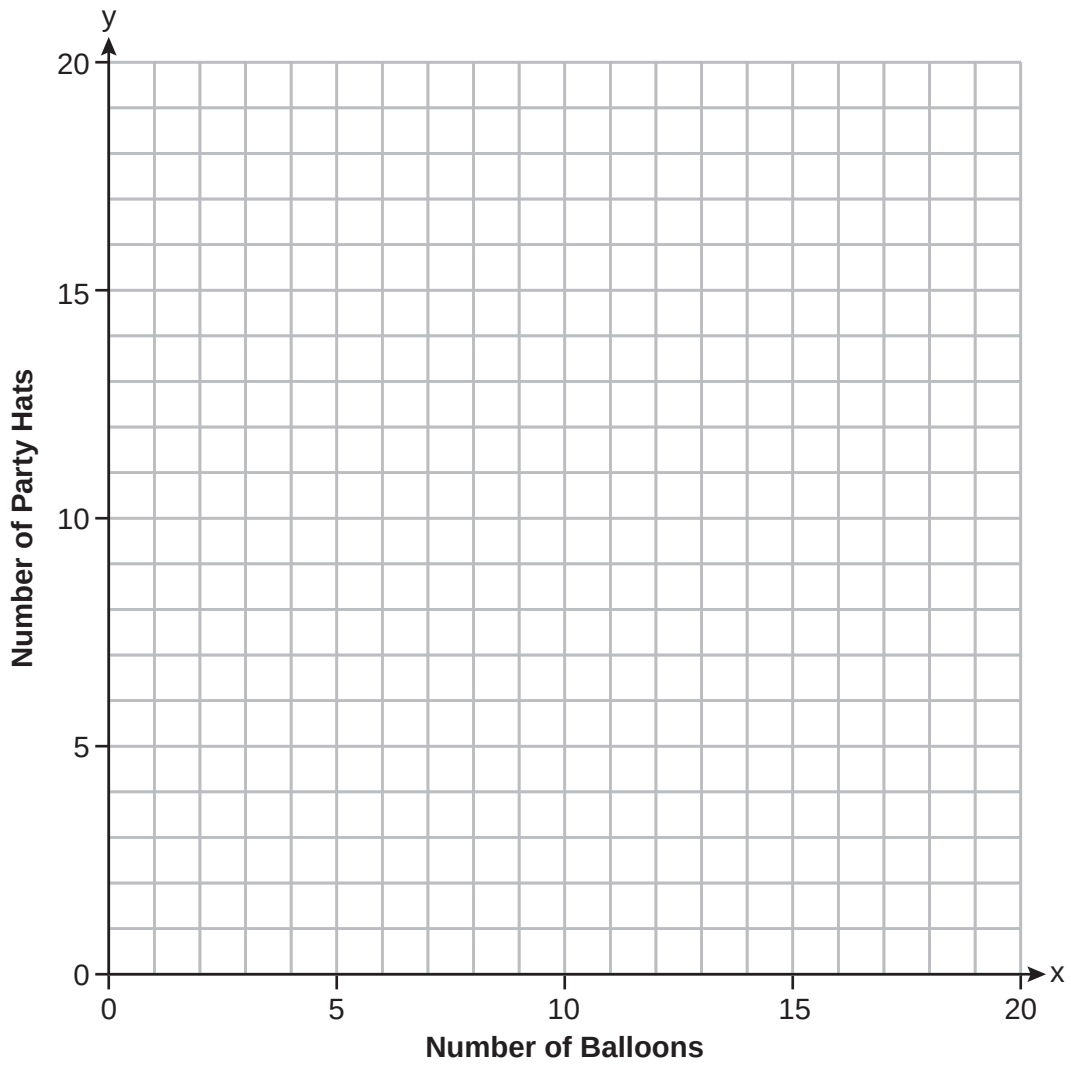
35 Anna plans to spend \$30 on balloons and party hats for her daughter's birthday party. Including tax, balloons cost \$2 each and party hats cost \$1.50 each. The number of party hats Anna needs is twice as many as the number of balloons.

If x represents the number of balloons and y represents the number of party hats, write a system of equations that can be used to represent this situation.

Question 35 is continued on the next page.

Question 35 continued

Graph your system of equations on the set of axes below.



State the coordinates of the point of intersection of your lines.

Explain what each coordinate means in the context of the problem.

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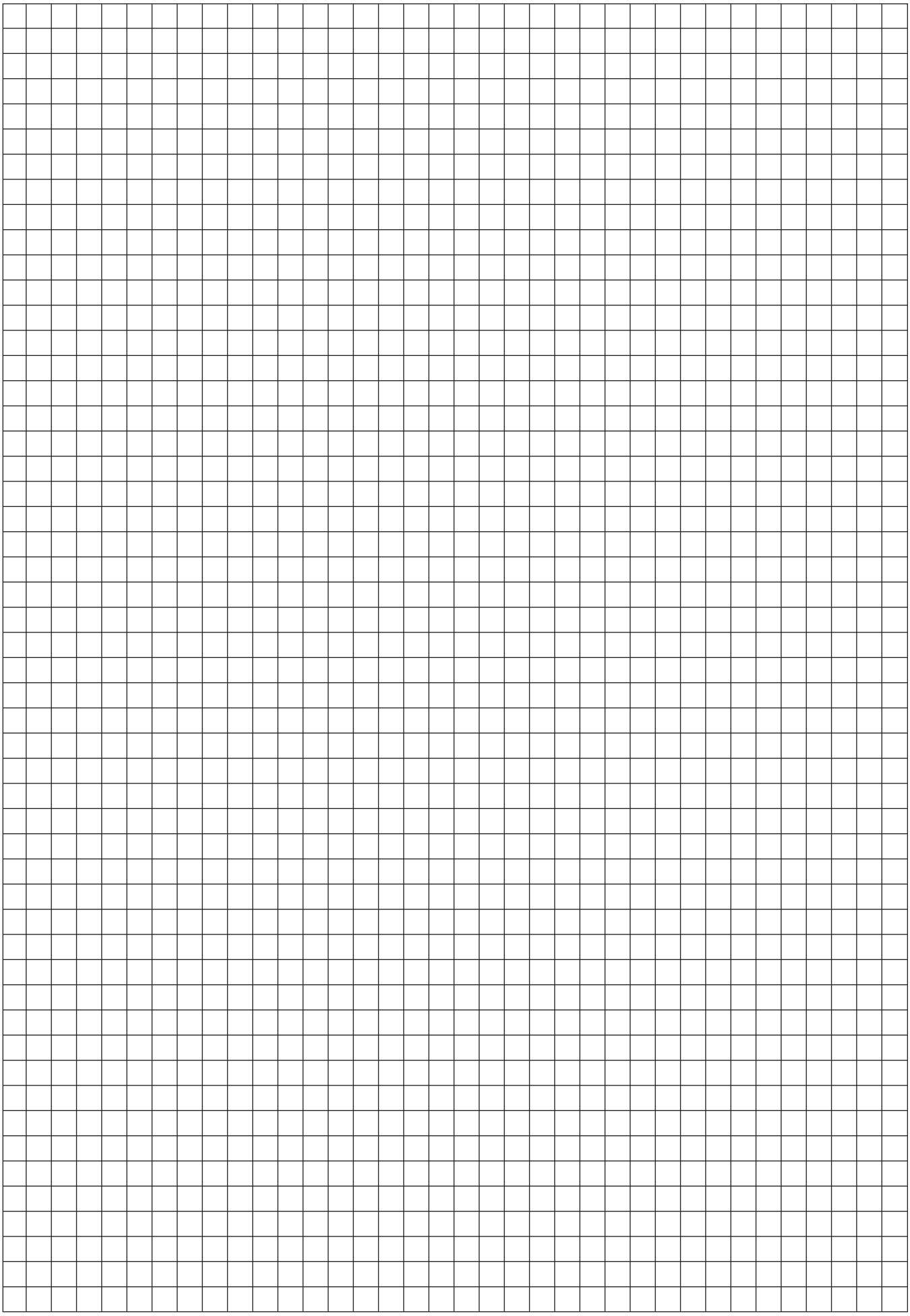
Scrap Graph Paper — this sheet will *not* be scored.



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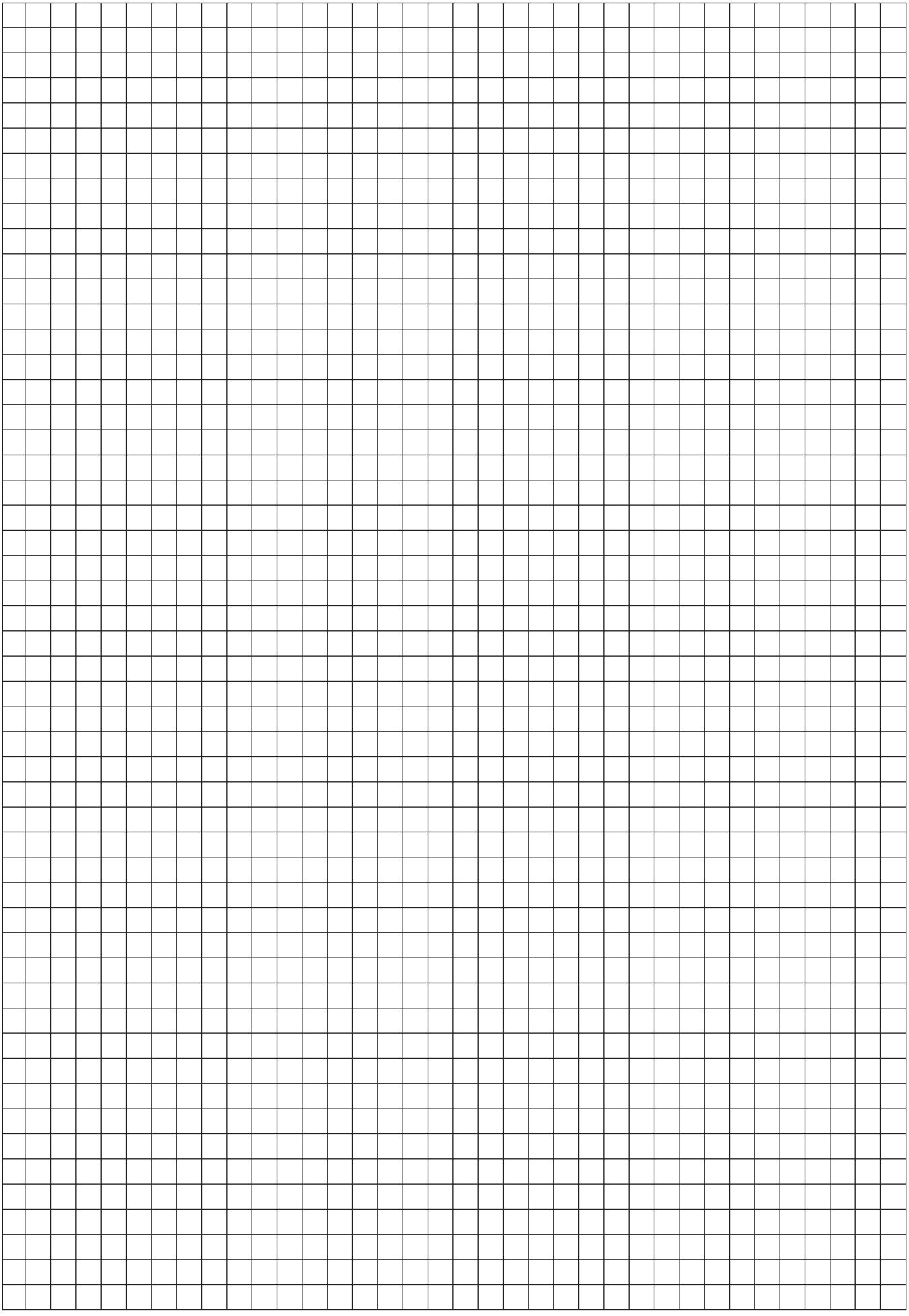

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Reference Sheet for Algebra I

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	$y = ax^2 + bx + c$
Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Equation of the Axis of Symmetry	$x = -\frac{b}{2a}$
Slope	$m = \frac{y_2 - y_1}{x_2 - x_1}$
Linear Equation Slope Intercept	$y = mx + b$
Linear Equation Point Slope	$y - y_1 = m(x - x_1)$

Exponential Equation	$y = ab^x$
Annual Compound Interest	$A = P(1 + r)^n$
Arithmetic Sequence	$a_n = a_1 + d(n - 1)$
Geometric Sequence	$a_n = a_1 r^{n-1}$
Interquartile Range (IQR)	$IQR = Q_3 - Q_1$
Outlier	Lower Outlier Boundary = $Q_1 - 1.5(IQR)$
	Upper Outlier Boundary = $Q_3 + 1.5(IQR)$

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ALGEBRA I

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ALGEBRA I

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

Regents Examination in Algebra I – January 2025

Scoring Key: Part I (Multiple-Choice Questions)

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

Regents Examination in Algebra I – January 2025

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

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

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

The chart for determining students' final examination scores for the **January 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

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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 are encouraged to incorporate the Model Response Sets into the scorer training or to use them as additional information during scoring. While not reflective of all scenarios, the model responses selected for the Model Response Set illustrate how less common student responses to constructed-response questions may be scored. The Model Response Set will be available on the Department's web site at 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, January 22, 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]** 5 to 9 or any subset of this interval, and a correct explanation is written.

[1] One conceptual error is made.

or

[1] A correct interval is stated, but the explanation is missing, incomplete, or incorrect.

or

[1] A correct explanation is written, 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.

(26) **[2]** A correct graph is drawn, and $x = -2$ is stated.

[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] A correct graph is drawn or $x = -2$ 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.

(27) **[2]** A correct value for m is stated, and a correct explanation is written.

[1] One conceptual error is made.

or

[1] A correct value for m is stated, but the explanation is missing, incomplete, or incorrect.

or

[1] A correct explanation is written, 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.

(28) **[2]** 3 and −11, 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 only 3 or −11 is stated.

or

[1] Appropriate work is shown, but a method other than completing the square is used to find 3 and −11.

or

[1] 3 and −11, 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]** 13, and correct algebraic work is shown.

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

or

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

or

[1] 13, 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]** $2\sqrt{2}$, 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] $2\sqrt{2}$, 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]** $n + d = 25$ and $0.05n + 0.10d = 1.70$, $d = 9$ and $n = 16$, and correct algebraic work is shown.

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

or

[3] Appropriate work is shown to find either $d = 9$ or $n = 16$.

or

[3] One equation is written incorrectly, but the system is solved appropriately.

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

or

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

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

or

[1] $d = 9$ and $n = 16$ are found, but a method other than algebraic is used.

or

[1] $d = 9$ and $n = 16$, 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]** $y = 9.1x - 527.6$, 0.9, 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] $y = 9.1x - 527.6$ is written, but no further correct work is shown.

[1] 0.9 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.

(33) **[4]** $\frac{-4 \pm 2\sqrt{7}}{2}$ or $-2 \pm \sqrt{7}$, and correct work 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.

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

or

[2] Appropriate work is shown to find $\frac{-4 \pm \sqrt{28}}{2}$, but no further correct work is shown.

or

[2] Appropriate work is shown, but a method other than the quadratic formula is used.

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

or

[1] $\frac{-4 \pm 2\sqrt{7}}{2}$, 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.

(34) **[4]** $x = 3, y = 0$ and $x = 6, y = 6$ or (3,0) and (6,6), 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 $x = 3$, and $x = 6$, but no further correct work is shown.

or

[3] Appropriate work is shown to find either (3,0) or (6,6), 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 $(x - 3)(x - 6) = 0$, 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] $x = 3, y = 0$ and $x = 6, y = 6$, 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] $x = 3, y = 0$ and $x = 6, y = 6$, 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 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]** $2x + 1.5y = 30$ and $y = 2x$ are written and graphed correctly, at least one is labeled, (6,12) is stated, and a correct explanation in context is written.

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

or

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

or

[5] One equation is incorrect, but the system is graphed and solved appropriately.

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

or

[4] A correct system of equations is written and graphed correctly, and at least one is labeled, but no further correct work is shown.

or

[4] Appropriate work is shown, but no graph is drawn.

[3] A correct system of equations is written, and (6,12) is stated, but no further correct work is shown.

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

or

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

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

or

[1] (6,12) is stated, but no further correct work is shown.

or

[1] A correct explanation is written, 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
January 2025

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

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

The *Chart for Determining the Final Examination Score for the January 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.

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

ALGEBRA I

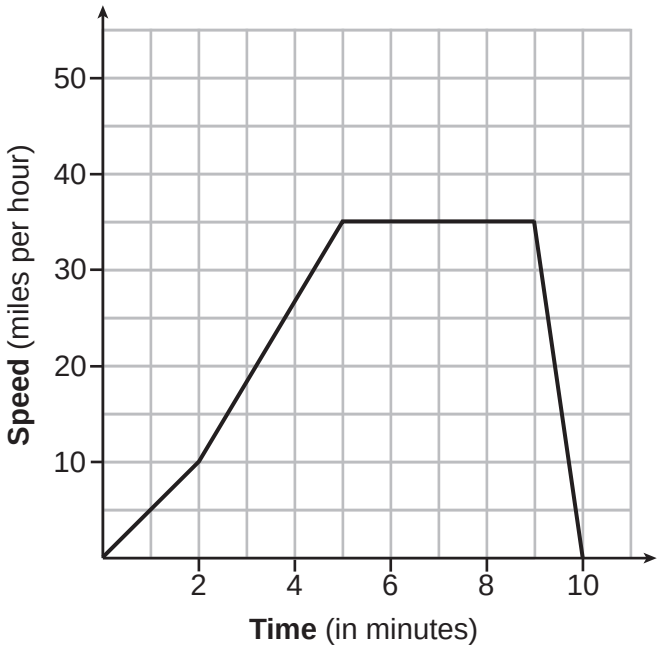
Wednesday, January 22, 2025 — 1:15 to 4:15 p.m., only

MODEL RESPONSE SET

Table of Contents

Question 25

25 The graph below models Sally's drive to the store.



State an interval when Sally is traveling at a constant speed.

5 to 9 minutes

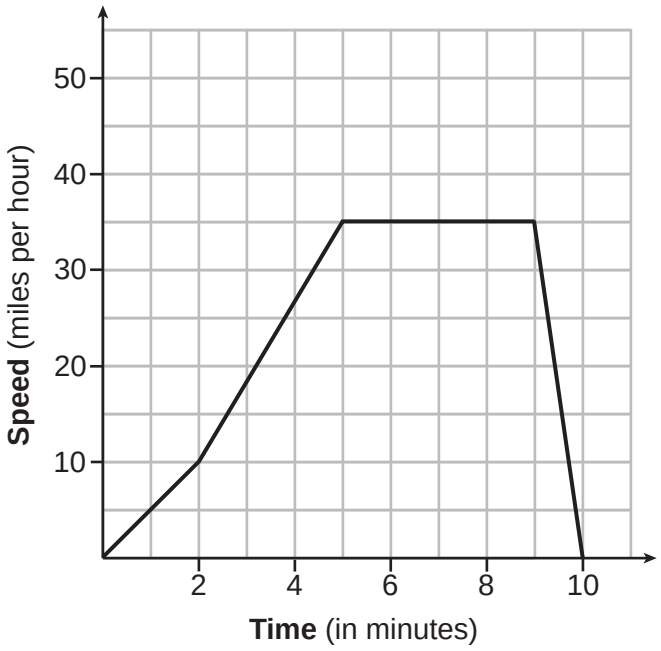
Explain your reasoning.

At 5 to 9 minutes Sally is traveling at a constant speed because the rate of change is 0 and the speed is not increasing nor decreasing.

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

Question 25

25 The graph below models Sally's drive to the store.



State an interval when Sally is traveling at a constant speed.

(5, 9)

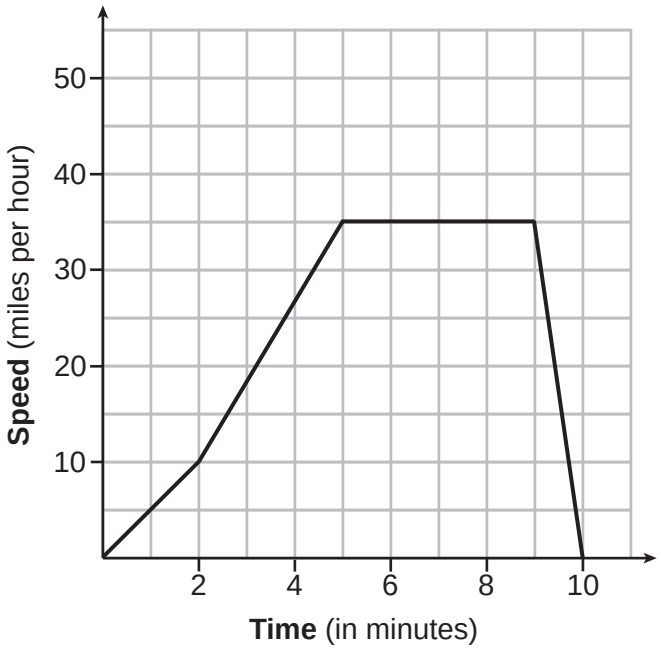
Explain your reasoning.

She stays at 35 mph

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

Question 25

25 The graph below models Sally's drive to the store.



State an interval when Sally is traveling at a constant speed.

$4 \leq x \leq 9.$

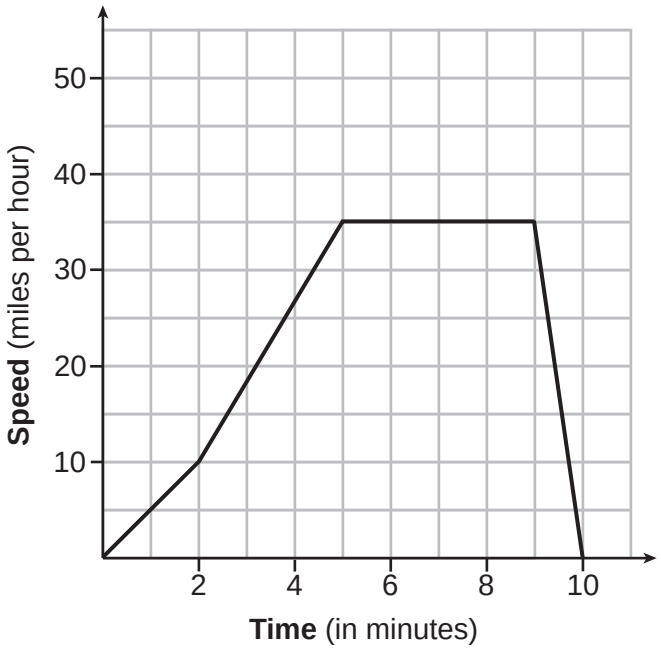
Explain your reasoning.

-the line is flat and speed is the same.

Score 1: The student gave a correct explanation.

Question 25

25 The graph below models Sally's drive to the store.



State an interval when Sally is traveling at a constant speed.

5 to 7

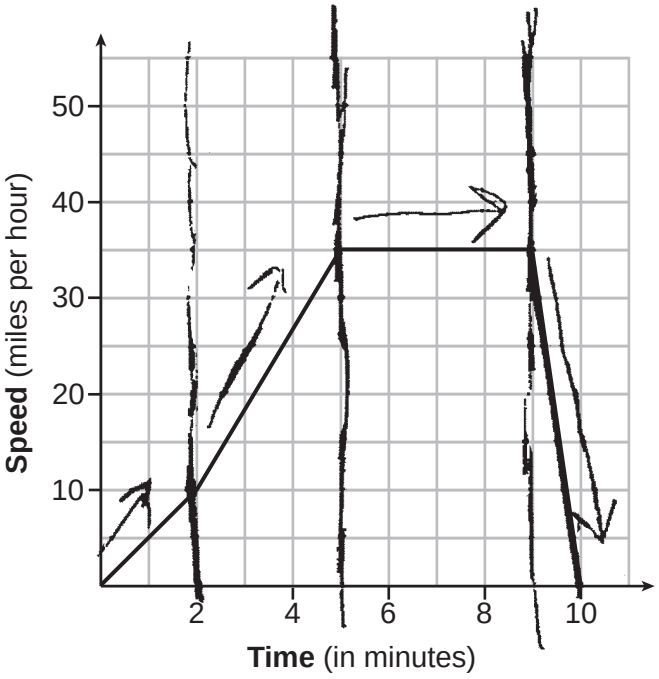
Explain your reasoning.

She take interval at 5 to 7.

Score 1: The student only wrote a correct interval.

Question 25

25 The graph below models Sally's drive to the store.



State an interval when Sally is traveling at a constant speed.

(5, 35)

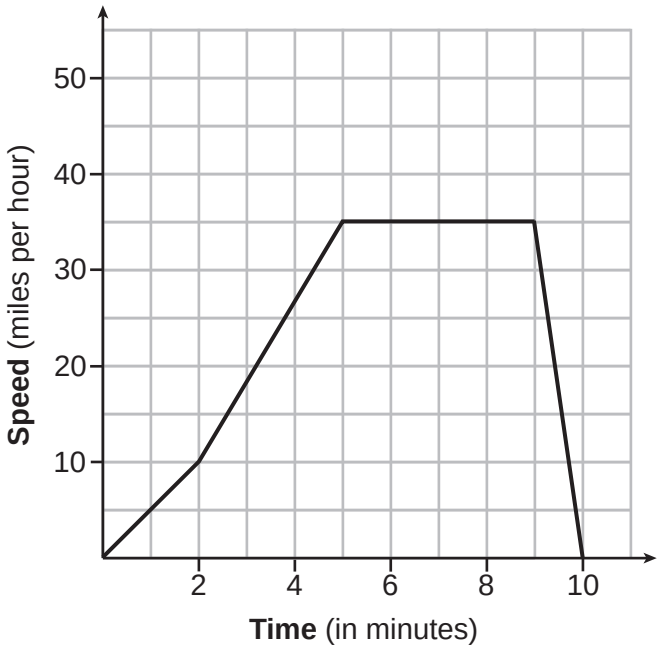
Explain your reasoning.

The graph shows straight line.

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

Question 25

25 The graph below models Sally's drive to the store.



State an interval when Sally is traveling at a constant speed.

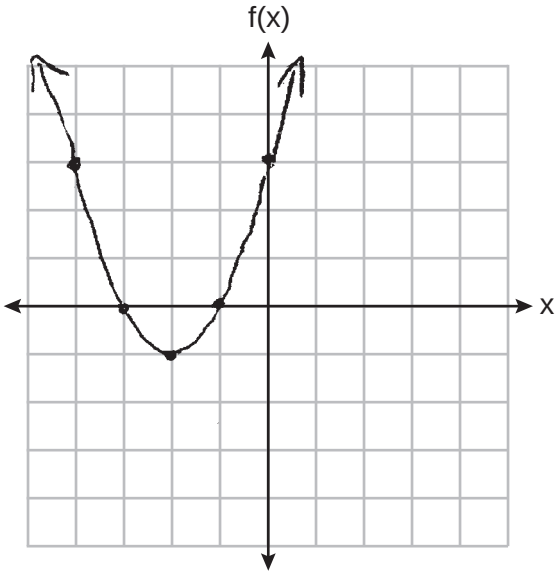
Explain your reasoning.

Sally is traveling at a constant
using the interval 10 - 35.

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

Question 26

26 Graph the function $f(x) = x^2 + 4x + 3$.



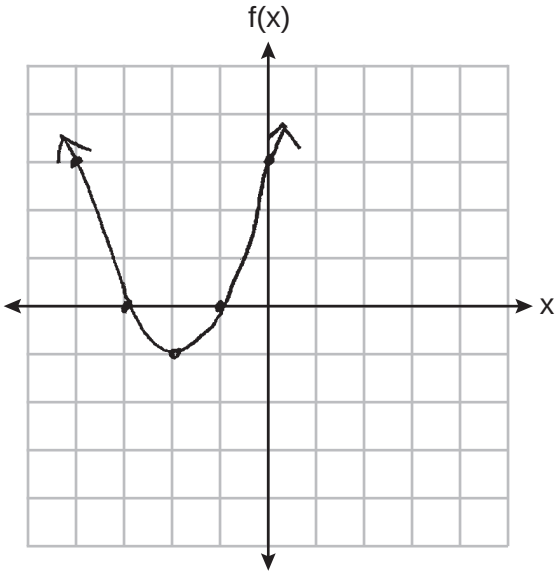
State the equation of the axis of symmetry of $f(x)$.

$x = -2$

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

Question 26

26 Graph the function $f(x) = x^2 + 4x + 3$.



State the equation of the axis of symmetry of $f(x)$.

$x = -\frac{b}{2a}$

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

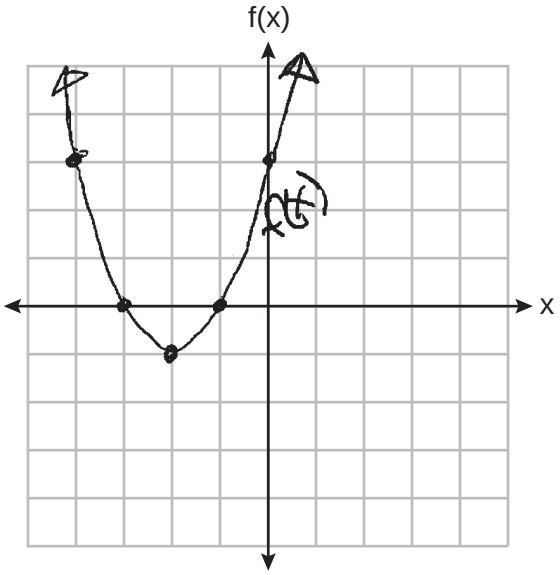
$x = -\frac{4}{2}$

$x = -2$

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

Question 26

26 Graph the function $f(x) = x^2 + 4x + 3$.



$\frac{-b}{2a}$

State the equation of the axis of symmetry of $f(x)$.

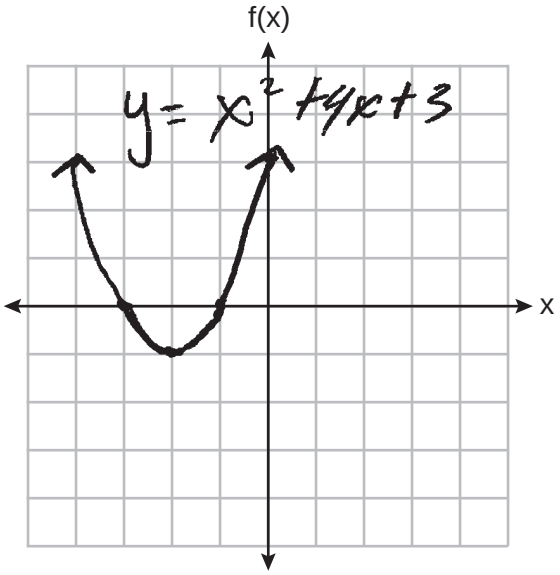
$\frac{-b}{2a} = \frac{-4}{2(1)} = -2$

Score 1: The student did not state the axis of symmetry as an equation.

Question 26

26 Graph the function $f(x) = x^2 + 4x + 3$.

x	y
-3	6
-2	-1
-1	0
0	3
1	8
-4	3



State the equation of the axis of symmetry of $f(x)$.

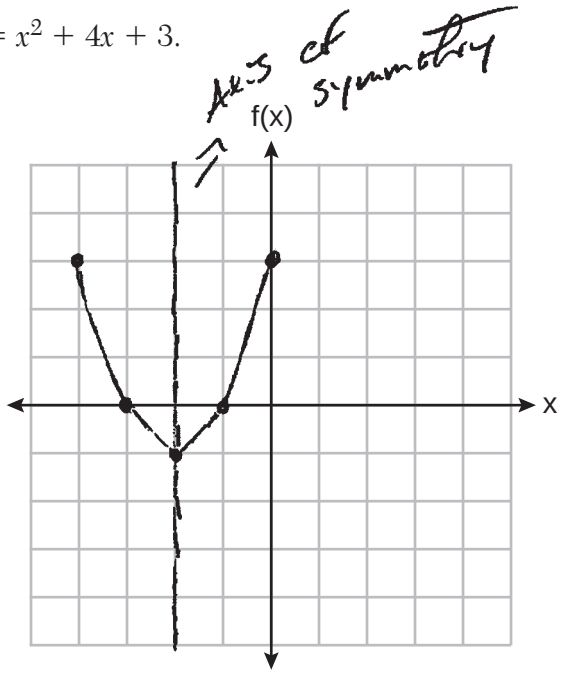
$y - \frac{-b}{2a}$

$y = -2$

Score 1: The student graphed the function correctly.

Question 26

26 Graph the function $f(x) = x^2 + 4x + 3$.



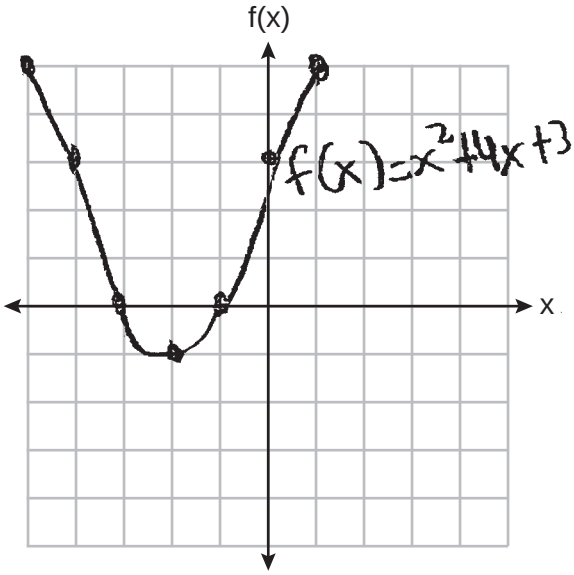
State the equation of the axis of symmetry of $f(x)$.

The axis of symmetry is -2

Score 0: The student made a graphing error by not extending the function, and the student did not express the axis of symmetry as an equation.

Question 26

26 Graph the function $f(x) = x^2 + 4x + 3$.



x	y
−5	8
−4	3
−3	0
−2	−1
−1	0
0	3
1	8

State the equation of the axis of symmetry of $f(x)$.

x^2+4x+3

x	y
−5	8
−4	3
−3	0
−2	−1
−1	0
0	3
1	8

Score 0: The student made a graphing error and did not state the equation of the axis of symmetry.

Question 27

27 The function $f(x)$ is shown in the table below.

x	0	3	2	6	1	5	4	m
f(x)	6	2	7	5	8	4	3	9

State an appropriate value for m in the table, so that $f(x)$ remains a function.

7

Explain your reasoning.

The number I chose was 7, but any number that isn't already listed in the x section of the table is an appropriate value. This is because in functions each point must have a different input.

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

Question 27

27 The function $f(x)$ is shown in the table below.

x	0	3	2	6	1	5	4	m
f(x)	6	2	7	5	8	4	3	9

State an appropriate value for m in the table, so that $f(x)$ remains a function.

m=7

Explain your reasoning.

The input value has to be unique.

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

Question 27

27 The function $f(x)$ is shown in the table below.

x	0	3	2	6	1	5	4	m
f(x)	6	2	7	5	8	4	3	9

State an appropriate value for m in the table, so that $f(x)$ remains a function.

F(x)=7

Explain your reasoning.

Since 7 does not repeat throughout the x values it will have the specific output of 9. If 7 was already in the x values then it could not be used again.

Score 1: The student wrote a correct explanation.

Question 27

27 The function $f(x)$ is shown in the table below.

+3 −1 +4 −5 +4 −1

x	0	3	2	6	1	5	4	m
f(x)	6	2	7	5	8	4	3	9

State an appropriate value for m in the table, so that $f(x)$ remains a function.

An appropriate value for m in the table so that f(x) remains a function is 8

Explain your reasoning.

I say it's 8 because there is a pattern when the numbers increase and decrease. The next step is add 4, so the appropriate value for m is 8

Score 1: The student stated a correct value for m.

Question 27

27 The function $f(x)$ is shown in the table below.

x	0	3	2	6	1	5	4	m
f(x)	6	2	7	5	8	4	3	9

State an appropriate value for m in the table, so that $f(x)$ remains a function.

you would have to change m to a number to have a value and be a function

Explain your reasoning.

it would not be a function because m is not a number and has no value

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

Question 27

27 The function $f(x)$ is shown in the table below.

x	0	3	2	6	1	5	4	m
f(x)	6	2	7	5	8	4	3	9

State an appropriate value for m in the table, so that $f(x)$ remains a function.

0

Explain your reasoning.

0 because it would go back to the x axis

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

Question 28

28 Solve $x^2 + 8x = 33$ for x by completing the square.

$x^2+8x=33$

$x^2+8x+16=33+16$

$\sqrt{(x+4)^2}=\sqrt{49}$

$x+4=\pm 7$

$x=3$
$x=-11$

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

Question 28

28 Solve $x^2 + 8x = 33$ for x by completing the square.

$x^2+8x=33$

$+16 \quad +16$

$x^2+8x+16=49$

$(x+4)^2=49$

$\sqrt{(x+4)^2} = \pm\sqrt{49}$

$x+4=\pm 7$

$x+4=7$ or $x+4=-7$

$-4 \quad -4 \qquad -4 \quad -4$

$x=3 \qquad x=-11$

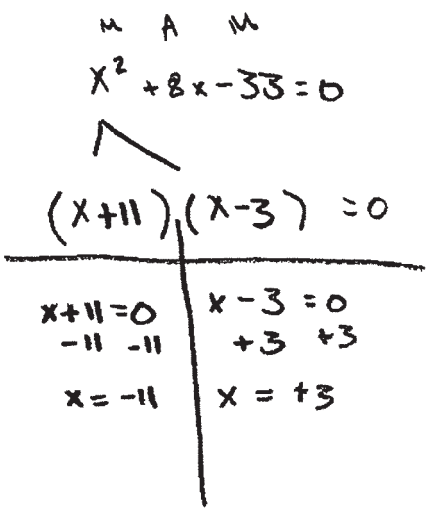
$C=\left(\frac{b}{2}\right)^2 \quad C=\left(\frac{8}{2}\right)^2 \quad C=(4)^2$

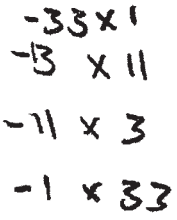
$C=16$

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

Question 28

28 Solve $x^2 + 8x = 33$ for x by completing the square.





$x = -11$

$x = +3$

Score 1: The student used a method other than completing the square.

Question 28

28 Solve $x^2 + 8x = 33$ for x by completing the square.

$x^2 + 8x = 33$

$x^2 + 8x + 16 = 33 + 16$

$x^2 + 8x + 16 = 49$

$\sqrt{(x+4)^2} = \sqrt{49}$

$x + 4 = \pm 49$

$x + 4 = 49$ $\quad$ $x + 4 = -49$

$-4 \quad -4$ $\quad$ $-4 \quad -4$

$x = 45$ OR $x = -53$

Score 1: The student did not find the square root of 49.

Question 28

28 Solve $x^2 + 8x = 33$ for x by completing the square.

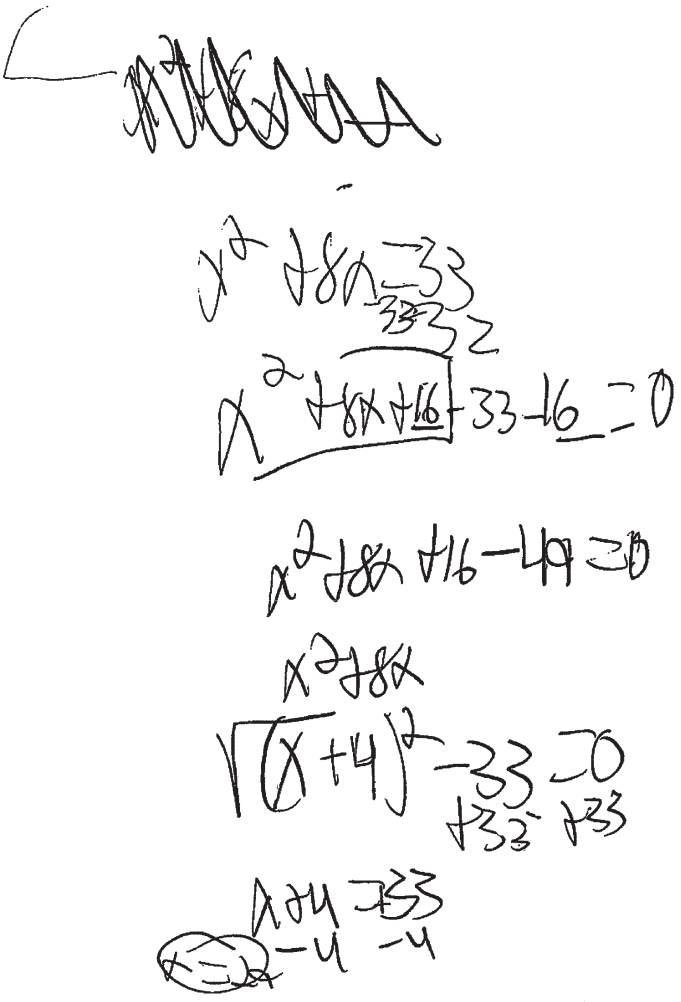
$x^2+8x=33$
$-33\ -33$
$x^2+8x-33=0$
$x^2+8x+16-16-33$
$(x+16)^2-49$

$\left(\frac{8}{2}\right)^2=4^2=16$

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

Question 28

28 Solve $x^2 + 8x = 33$ for x by completing the square.



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

Question 29

29 If $f(x) = \frac{-3x - 5}{2}$, algebraically determine the value of x when $f(x) = -22$.

$$-22 = \frac{-3x-5}{2}$$

$$-44 = -3x-5$$

$$-39 = -3x$$

$$x = 13$$

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

Question 29

29 If $f(x) = \frac{-3x - 5}{2}$, algebraically determine the value of x when $f(x) = -22$.

$\frac{-3x-5}{2} = -22$

$-1.5x - 2.5 = -22$

$+2.5 \quad +2.5$

$\frac{-1.5x = -19.5}{-1.5}$

$x = 13$

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

Question 29

29 If $f(x) = \frac{-3x - 5}{2}$, algebraically determine the value of x when $f(x) = -22$.

$f(x) = \frac{-3x - 5}{2}$

$f(x) = \frac{-3(-22) - 5}{2} \rightarrow f(x) = \frac{66 - 5}{2}$

$f(x) = \frac{61}{2} = \boxed{30.5}$

Score 1: The student incorrectly substituted -22 for x.

Question 29

29 If $f(x) = \frac{-3x - 5}{2}$, algebraically determine the value of x when $f(x) = -22$.

f(x) = -22 when X = 13

Score 1: The student stated the correct answer.

Question 29

29 If $f(x) = \frac{-3x - 5}{2}$, algebraically determine the value of x when $f(x) = -22$.

$-22 = \frac{-3x-5}{2}$

$\frac{-3(7)-5}{22} \approx$ about -22

$x = 7$

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

Question 29

29 If $f(x) = \frac{-3x - 5}{2}$, algebraically determine the value of x when $f(x) = -22$.

$\frac{-3(6.5)-5}{2}$

$\frac{-19.5-5}{2} = -22$

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

Question 30

30 Rationalize the denominator of the fraction below. Express the solution in simplest form.

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

$\frac{4}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}}$

$\frac{4\sqrt{2}}{\sqrt{2}\sqrt{2}}$ numerator / denominator

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

$\frac{\cancel{4}^{2}\sqrt{2}}{\cancel{2}_{1}}$

$2\sqrt{2}$

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

Question 30

30 Rationalize the denominator of the fraction below. Express the solution in simplest form.

?

$\sqrt{16} \leftarrow \frac{4}{\sqrt{2}}$

$\frac{\sqrt{16}}{\sqrt{2}} \rightarrow \sqrt{\frac{16}{2}} = \sqrt{8}$

$\sqrt{8}$

$\sqrt{4}\ \sqrt{2}$

$2\sqrt{2}$

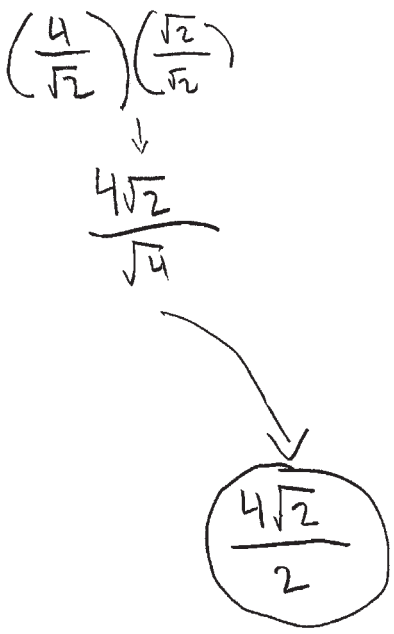
$2\sqrt{2}$

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

Question 30

30 Rationalize the denominator of the fraction below. Express the solution in simplest form.

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



Score 1: The student did not simplify $\frac{4\sqrt{2}}{2}$.

Question 30

30 Rationalize the denominator of the fraction below. Express the solution in simplest form.

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

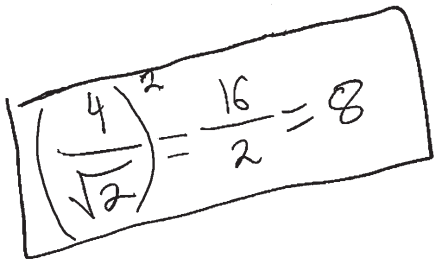
$\frac{4}{\sqrt{2}} \cdot \sqrt{2} = 4$

Score 1: The student multiplied by $\frac{\sqrt{2}}{1}$ instead of $\frac{\sqrt{2}}{\sqrt{2}}$.

Question 30

30 Rationalize the denominator of the fraction below. Express the solution in simplest form.

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



Score 1: The student squared the fraction and simplified.

Question 30

30 Rationalize the denominator of the fraction below. Express the solution in simplest form.

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

$\frac{4}{1.41421...} = 2.82843...$

Score 0: The student expressed the fraction as a decimal.

Question 30

30 Rationalize the denominator of the fraction below. Express the solution in simplest form.

$\frac{4}{\sqrt{2}}(\sqrt{2})$

$4\sqrt{2}$

Score 0: The student multiplied by $\frac{\sqrt{2}}{1}$ and made a computational error.

Question 31

31 Alex had $1.70 in nickels and dimes on his desk. There were 25 coins in all.

Write a system of equations that could be used to determine both the number of nickels, n, and the number of dimes, d, that Alex had.

$.05n + .1d = 1.70$

$n + d = 25$

Use your system of equations to algebraically determine both the number of nickels and the number of dimes that he had.

$.05n + .1d = 1.70$

$-.05(n + d = 25)$

$-.05n - .05d = -1.25$

$.05n + .1d = 1.70$

$.05d = .45$

$d = 9$

$.05n + .1(9) = 1.70$

$.05n + .9 = 1.70$

$.05n = .8$

$n = 16$

Alex has 9 dimes and 16 nickels

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

Question 31

31 Alex had $1.70 in nickels and dimes on his desk. There were 25 coins in all.

Write a system of equations that could be used to determine both the number of nickels, n, and the number of dimes, d, that Alex had.

$$\begin{cases} n+d=25 \\ 0.05n+0.1d=1.70 \end{cases}$$

Use your system of equations to algebraically determine both the number of nickels and the number of dimes that he had.

$n+d=25$

$0.05n+0.1d=1.7$

$n+d=25$

$-d \quad -d$

$n=25-d$

$0.05(25-d)+0.1d=1.7$

$1.25-0.05d+0.1d=1.7$

$1.25+0.05d=1.7$

$-1.25 \qquad -1.25$

$0.05d=0.45$

$\frac{0.05d}{0.05}=\frac{0.45}{0.05}$

$d=9$

$n=25-9$

$n=16$

He has 16 nickles and 9 dimes

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

Question 31

31 Alex had \$1.70 in nickels and dimes on his desk. There were 25 coins in all.

Write a system of equations that could be used to determine both the number of nickels, n, and the number of dimes, d, that Alex had.

$\$1.70 = 0.05n + 0.10d$

$n + d = 25$

Use your system of equations to algebraically determine both the number of nickels and the number of dimes that he had.

$0.05n + 0.10d = 1.70$

$n = 16 \quad d = 9$

$16 + 9 = 25$

$0.05(16) + 0.10(9) = 1.70$

Alex had 16 nickels and 9 dimes

Score 3: The student wrote a correct system of equations and stated $n = 16$ and $d = 9$.

Question 31

31 Alex had $1.70 in nickels and dimes on his desk. There were 25 coins in all.

Write a system of equations that could be used to determine both the number of nickels, n, and the number of dimes, d, that Alex had.

$n + d = 25$

$0.05n + 0.10d = 1.70$

Use your system of equations to algebraically determine both the number of nickels and the number of dimes that he had.

Score 2: The student wrote a correct system of equations.

Question 31

31 Alex had $1.70 in nickels and dimes on his desk. There were 25 coins in all.

Write a system of equations that could be used to determine both the number of nickels, n, and the number of dimes, d, that Alex had.

$25 - n = d$

Use your system of equations to algebraically determine both the number of nickels and the number of dimes that he had.

Score 1: The student wrote one correct equation.

Question 31

31 Alex had \$1.70 in nickels and dimes on his desk. There were 25 coins in all.

Write a system of equations that could be used to determine both the number of nickels, n, and the number of dimes, d, that Alex had.

$1.70n + 1.70d = 25$
$n + d = 15$

Use your system of equations to algebraically determine both the number of nickels and the number of dimes that he had.

$1.70n + 1.70d = 25$
$-1.70(n + d = 15)$

$1.70n + 1.70d = 25$
$-1.70n - 1.70d = 15$

$0n = 40$
$-0 \quad -0$
$n = 0$

$1.70(0) + 1.70d = 25$
$1.70d = 25$
$\div 1.70 \quad \div 1.70$
$d = 14$

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

Question 32

32 The table below shows the average heart rate, x, and Calories burned, y, for seven men on an Olympic rowing team during a one-hour workout class.

Average Heart Rate (x)	135	147	150	144	146	153	143
Calories Burned (y)	725	812	866	761	825	863	737

Write the linear regression equation that models these data, rounding all values to the *nearest tenth.*

$y = 9.1x - 527.6$

State the correlation coefficient, rounded to the *nearest tenth*.

0.9

State what the correlation coefficient suggests about the linear fit of these data.

very strong correlation

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

Question 32

32 The table below shows the average heart rate, x, and Calories burned, y, for seven men on an Olympic rowing team during a one-hour workout class.

Average Heart Rate (x)	135	147	150	144	146	153	143
Calories Burned (y)	725	812	866	761	825	863	737

Write the linear regression equation that models these data, rounding all values to the *nearest tenth.*

$y = 9.1x - 527.6$

State the correlation coefficient, rounded to the *nearest tenth*.

$r = 0.9$

State what the correlation coefficient suggests about the linear fit of these data.

Since the correlation coefficient is close to 1, it suggests that the linear fit is strong for this data.

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

Question 32

32 The table below shows the average heart rate, x, and Calories burned, y, for seven men on an Olympic rowing team during a one-hour workout class.

Average Heart Rate (x)	135	147	150	144	146	153	143
Calories Burned (y)	725	812	866	761	825	863	737

Write the linear regression equation that models these data, rounding all values to the *nearest tenth.*

$Y = mx + b$

$y = 9.1x - 527.5$

State the correlation coefficient, rounded to the *nearest tenth*.

.9

State what the correlation coefficient suggests about the linear fit of these data.

Strong positive

Score 3: The student made one rounding error.

Question 32

32 The table below shows the average heart rate, x, and Calories burned, y, for seven men on an Olympic rowing team during a one-hour workout class.

Average Heart Rate (x)	135	147	150	144	146	153	143
Calories Burned (y)	725	812	866	761	825	863	737

Write the linear regression equation that models these data, rounding all values to the *nearest tenth.*

y = mx+b

y = 9.1x + -527.6

State the correlation coefficient, rounded to the *nearest tenth*.

0.9

State what the correlation coefficient suggests about the linear fit of these data.

its no a straight line.

Score 3: The student wrote the correct linear regression equation and stated the correct correlation coefficient.

Question 32

32 The table below shows the average heart rate, x, and Calories burned, y, for seven men on an Olympic rowing team during a one-hour workout class.

Average Heart Rate (x)	135	147	150	144	146	153	143
Calories Burned (y)	725	812	866	761	825	863	737

Write the linear regression equation that models these data, rounding all values to the *nearest tenth.*

$y = 9.2x - 540.4$

State the correlation coefficient, rounded to the *nearest tenth*.

0.9

State what the correlation coefficient suggests about the linear fit of these data.

This means there is a strong correlation between average heart rate and calories burned since 0.9 is close to one

Score 2: The student stated a correct correlation coefficient and stated its strength.

Question 32

32 The table below shows the average heart rate, x, and Calories burned, y, for seven men on an Olympic rowing team during a one-hour workout class.

Average Heart Rate (x)	135	147	150	144	146	153	143
Calories Burned (y)	725	812	866	761	825	863	737

Write the linear regression equation that models these data, rounding all values to the *nearest tenth.*

$y = 9.1x + 527.6$

State the correlation coefficient, rounded to the *nearest tenth*.

$\sigma x = 5.2$

State what the correlation coefficient suggests about the linear fit of these data.

It represents the higher the calories burned the higher the heart rate.

Score 1: The student wrote an incorrect sign in the linear regression equation.

Question 32

32 The table below shows the average heart rate, x, and Calories burned, y, for seven men on an Olympic rowing team during a one-hour workout class.

Average Heart Rate (x)	135	147	150	144	146	153	143
Calories Burned (y)	725	812	866	761	825	863	737

Write the linear regression equation that models these data, rounding all values to the *nearest tenth.*

9.1x + -527.6

State the correlation coefficient, rounded to the *nearest tenth*.

-24.7

State what the correlation coefficient suggests about the linear fit of these data.

The linear fit of this data is not the best fit.

Score 1: The student only wrote a correct expression.

Question 32

32 The table below shows the average heart rate, x, and Calories burned, y, for seven men on an Olympic rowing team during a one-hour workout class.

Average Heart Rate (x)	135	147	150	144	146	153	143
Calories Burned (y)	725	812	866	761	825	863	737

Write the linear regression equation that models these data, rounding all values to the *nearest tenth.*

140 150 150 140 150 150 140

730 810 870 760 830 860 740

State the correlation coefficient, rounded to the *nearest tenth*.

5.5x

State what the correlation coefficient suggests about the linear fit of these data.

The higher the heart rate the more calories burned

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

Question 33

33 Using the quadratic formula, solve $x^2 + 4x - 3 = 0$.

Express your solution in simplest radical form.

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

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

$$= \frac{-4 \pm \sqrt{16 + 12}}{2}$$

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

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

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

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

Question 33

33 Using the quadratic formula, solve $x^2 + 4x - 3 = 0$.

Express your solution in simplest radical form.

$x^2+4x-3=0$

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

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

$x = -2+\sqrt{7}$ $x = -2-\sqrt{7}$

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

Question 33

33 Using the quadratic formula, solve $x^2 + 4x - 3 = 0$.

Express your solution in simplest radical form.

$a = 1, b = 4, c = -3$

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

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

$$= \frac{-4 \pm \sqrt{16 + 6}}{2}$$

$$= \frac{-4 \pm \sqrt{22}}{2}$$

$$\frac{-4 + \sqrt{22}}{2} \qquad \frac{-4 - \sqrt{22}}{2}$$

Score 3: The student made one mistake when writing the quadratic formula.

Question 33

33 Using the quadratic formula, solve $x^2 + 4x - 3 = 0$.

Express your solution in simplest radical form.

$$\overset{(A)}{x^2} + \overset{(B)}{4x} \overset{(C)}{-3} = 0$$

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

$$x = \frac{-4 \pm \sqrt{16 + 12}}{2}$$

$$x = \frac{-4 \pm \sqrt{27}}{2}$$

$$x = \frac{-4 \pm \sqrt{9}\sqrt{3}}{2}$$

$$x = \frac{-4 \pm 3\sqrt{3}}{2}$$

Score 3: The student made one computational error.

Question 33

33 Using the quadratic formula, solve $x^2 + 4x - 3 = 0$.

Express your solution in simplest radical form.

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

$1 = a$
$4 = b$
$-3 = c$

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

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

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

Score 2: The student showed correct work to find $\frac{-4 \pm \sqrt{28}}{2}$.

Question 33

33 Using the quadratic formula, solve $x^2 + 4x - 3 = 0$.

Express your solution in simplest radical form.

$(\frac{4}{2})^2 = 4$

$x^2+4x-3=0$

$x^2+4x=3$

$\sqrt{(x+2)^2}=\sqrt{7}$

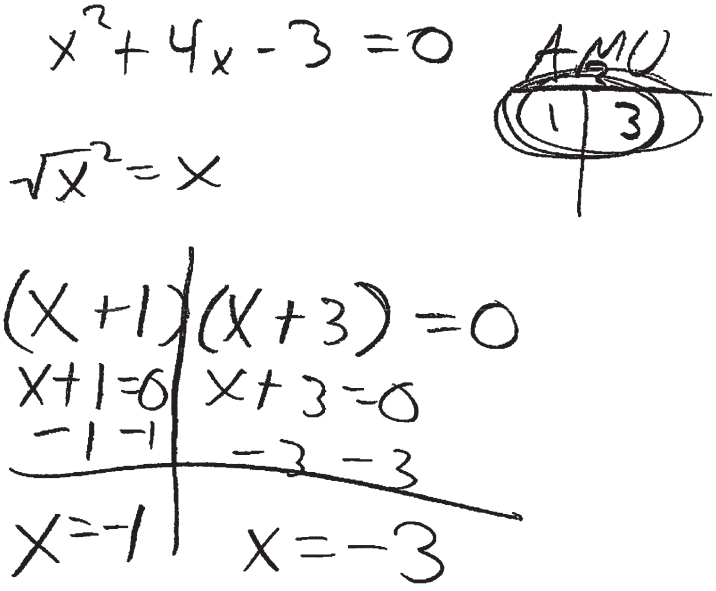
$x=2\pm\sqrt{7}$

Score 1: The student did not solve the equation using the quadratic formula and made a computational error.

Question 33

33 Using the quadratic formula, solve $x^2 + 4x - 3 = 0$.

Express your solution in simplest radical form.



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

Question 33

33 Using the quadratic formula, solve $x^2 + 4x - 3 = 0$.

Express your solution in simplest radical form.

$X^2+4X-3=0$

$+3 \quad +3$

$X^2+4X=3$

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

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

$a=1$

$b=4$

$C=3$

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

$-3 \quad -5$

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

Question 34

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

$y = x^2 - 7x + 12$

$y = 2x - 6$

$x = 6$, $y = 6$ $\quad$ $x = 3$, $y = 0$

$2x - 6 = x^2 - 7x + 12$

$+6 \qquad +6$

$2x = x^2 - 7x + 18$

$-x^2 \quad -x^2$

$-x^2 + 2x = -7x + 18$

$-2x \quad -2x$

$-x^2 = -9x + 18$

$+x^2 \quad +x^2$

$x^2 - 9x + 18 = 0$

$x = \frac{-(-9) \pm \sqrt{(-9)^2 - 4(1)(18)}}{2(1)}$

$= \frac{9 \pm \sqrt{9}}{2}$

$x = \frac{9 \pm 3}{2}$

$x = \frac{9+3}{2} = \frac{12}{2} = 6$

$x = \frac{9-3}{2} = \frac{6}{2} = 3$

$y = 2(6) - 6$

$y = 12 - 6$

$y = 6$

$y = 2(3) - 6$

$y = 6 - 6$

$y = 0$

$x = 6$ or $x = 3$

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.

$$y = x^2 - 7x + 12$$
$$y = 2x - 6$$

$2x-6 = x^2-7x+12$

$x^2-9x+18 = 0$

$(x-3)(x-6) = 0$

$x=3 \quad x=6$

$y=2(3)-6 \quad y=2(6)-6$

$y=0 \quad y=6$

$(3,0), (6,6)$

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.

$$y = x^2 - 7x + 12$$

$$y = 2x - 6$$

$x^2 - 7x + 12 = 2x - 6$
$-2x \quad -2x$

$x^2 - 9x + 12 = -6$
$+6 \quad +6$

$x^2 - 9x + 18 = 0$
$+2.25 \quad +2.25$

$x^2 - 9x + 20.25 = 2.25$

$\sqrt{(x-4.5)^2} = \pm\sqrt{2.25}$

$x - 4.5 = 1.5$ or $x - 4.5 = -1.5$
$+4.5 \quad +4.5$ $+4.5 \quad +4.5$

$x = 6$ or $x = 3$

$y = 2x - 6$ $y = 2x - 6$
$y = 2(6) - 6$ $y = 2(3) - 6$
$y = 6$ or $y = 0$

$x = 6$ $x = 3$
or
$y = 6$ $y = 0$

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.

$y = x^2 - 7x + 12$

$y = 2x - 6$

$b = -9 \quad \frac{1}{2}b = -4.5 \quad \frac{1}{2}^2 = 20.25$

$2x - 6 = x^2 - 7x + 12$

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

$x^2 - 9x + 18 = 0$

$(x - 4.5)^2 + 18 - 20.25 = 0$

$(x - 4.5)^2 - 2.25 = 0$

$+2.25 \quad\quad +2.25$

$\sqrt{(x - 4.5)^2} = \sqrt{2.25}$

$x - 4.5 = \pm 2.25$

$+4.5 \quad\quad +4.5$

$x = 4.5 \pm 2.25$

$x = 6.75 \quad (6.75, 7.5)$

$x = 2.25 \quad (2.25, -1.5)$

$y = 2(6.75) - 6 \quad y = 7.5$

$y = 2(2.25) - 6 \quad y = -1.5$

Score 3: The student made one computational error by not computing the square root of 2.25.

Question 34

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

$$y = x^2 - 7x + 12$$
$$y = 2x - 6$$

$x^2 - 7x + 12 = 2x - 6$
$-2x \quad +6 \quad -2x \quad +6$
$x^2 - 9x + 18 = 0$
$(x-6)(x-3) = 0$
$x - 6 = 0 \quad x - 3 = 0$
$+6 \quad +6 \quad +3 \quad +3$
~~$x = 6$~~ $\quad x = 3$

18
2 9
-6 -3

$y = 3^2 - 7(3) + 12$
$y = 9 - 21 + 12$
$y = 0$

$y = 6^2 - 7(6) + 12$
$y = 36 - 42 + 12$
$y = 0$

Score 3: The student made one computational error when finding the y-value when $x = 6$.

Question 34

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

$y = x^2 - 7x + 12$

$y = 2x - 6$

$Y = x^2 - 7x + 12$

$Y = 2x - 6$

(3,0) (6,6) ← Intersections

Check

$0 = 3^2 - 21 + 12$

$0 = 9 - 21 + 12$

$0 = 0$ ✓

$6 = 6^2 - 42 + 12$

$6 = 36 - 42 + 12$

$6 = 6$ ✓

$0 = 2(3) - 6$

$0 = 6 - 6$

$0 = 0$ ✓

$6 = 2(6) - 6$

$6 = 12 - 6$

$6 = 6$ ✓

Score 2: The student used a method other than algebraic.

Question 34

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

$$y = x^2 - 7x + 12$$
$$y = 2x - 6$$

$x^2 - 7x + 12 = 2x - 6$
$+7x \qquad\qquad 7x$

$x^2 + 12 = 9x - 6$
$+6 \qquad\qquad +6$

$x^2 - 9x + 18 = 0$

A: 1
B: −9
C: 18

$$x = \frac{-(-9) \pm \sqrt{(-9)^2 - 4(1)(18)}}{2(1)}$$

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.

$$y = x^2 - 7x + 12$$

$$y = 2x - 6$$

$x^2 - 7x + 12 = 2x - 6$

$+7x \qquad +7x$

$x^2 + 12 = 9x - 6$

$+6 \qquad +6$

$x^2 + 18 = 9x$

$-9x \qquad -9x$

$x^2 - 9x + 18$

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

Question 34

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

$$y = x^2 - 7x + 12$$
$$y = 2x - 6$$

X's (3,6) when they equal

$2x - 6 = 0$
$+6 \quad +6$
$\frac{2x}{2} = \frac{6}{2}$
$x = 3$

$x^2 - 7x + 12 = 0$
$-12 \quad +12$
$x^2 - 7x = -12$
$+7 \quad +7$
$\frac{x}{1} = \frac{19}{3}$

6, 3

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

Question 34

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

$$y = x^2 - 7x + 12$$
$$y = 2x - 6$$

$Y = x^2 - 7x + 12$

X	Y
0	12
1	6
2	2
3	0

$Y = 2x - 6$

X	Y
0	−6
1	−4
2	−2
3	0

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

Question 35

35 Anna plans to spend \$30 on balloons and party hats for her daughter's birthday party. Including tax, balloons cost \$2 each and party hats cost \$1.50 each. The number of party hats Anna needs is twice as many as the number of balloons.

If x represents the number of balloons and y represents the number of party hats, write a system of equations that can be used to represent this situation.

$2x+1.5y=30$
$y=2x$

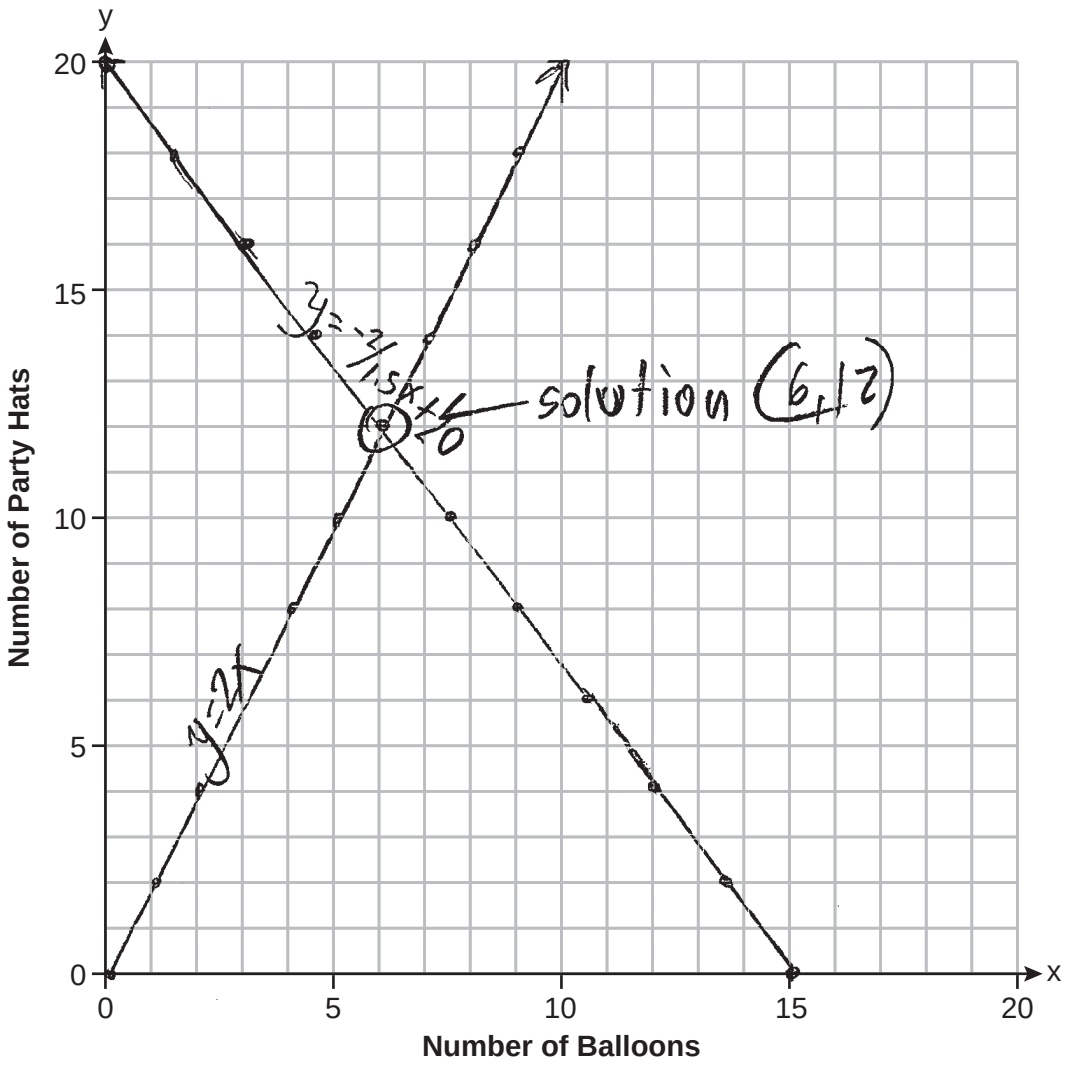
$2x+1.5y=30$
$-2x \quad -2x$
$1.5y = -2x+30$
$\frac{1.5y}{1.5} = \frac{-2x+30}{1.5}$
$y = \frac{-2}{1.5}x + 20$

Question 35 is continued on the next page.

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

Question 35 continued

Graph your system of equations on the set of axes below.



State the coordinates of the point of intersection of your lines.

(6,12)

Explain what each coordinate means in the context of the problem.

The solution is (6,12). In the context of the problem, this means that for 6 balloons and 12 party hats Anniaa will have be able to pay for the supplies as well as have twice the amount of party hats than balloons.

Question 35

35 Anna plans to spend \$30 on balloons and party hats for her daughter's birthday party. Including tax, balloons cost \$2 each and party hats cost \$1.50 each. The number of party hats Anna needs is twice as many as the number of balloons.

If x represents the number of balloons and y represents the number of party hats, write a system of equations that can be used to represent this situation.

$2y + x = 30$
$1.50y + 2x = 30$

$2y + x = 30$
$1.50y + 2x = 20$

$2y + x = 30$
$-x \quad -x$
$\frac{2y}{2} = \frac{-1x}{2} + \frac{30}{2}$
$y = -\frac{1}{2}x + 15$

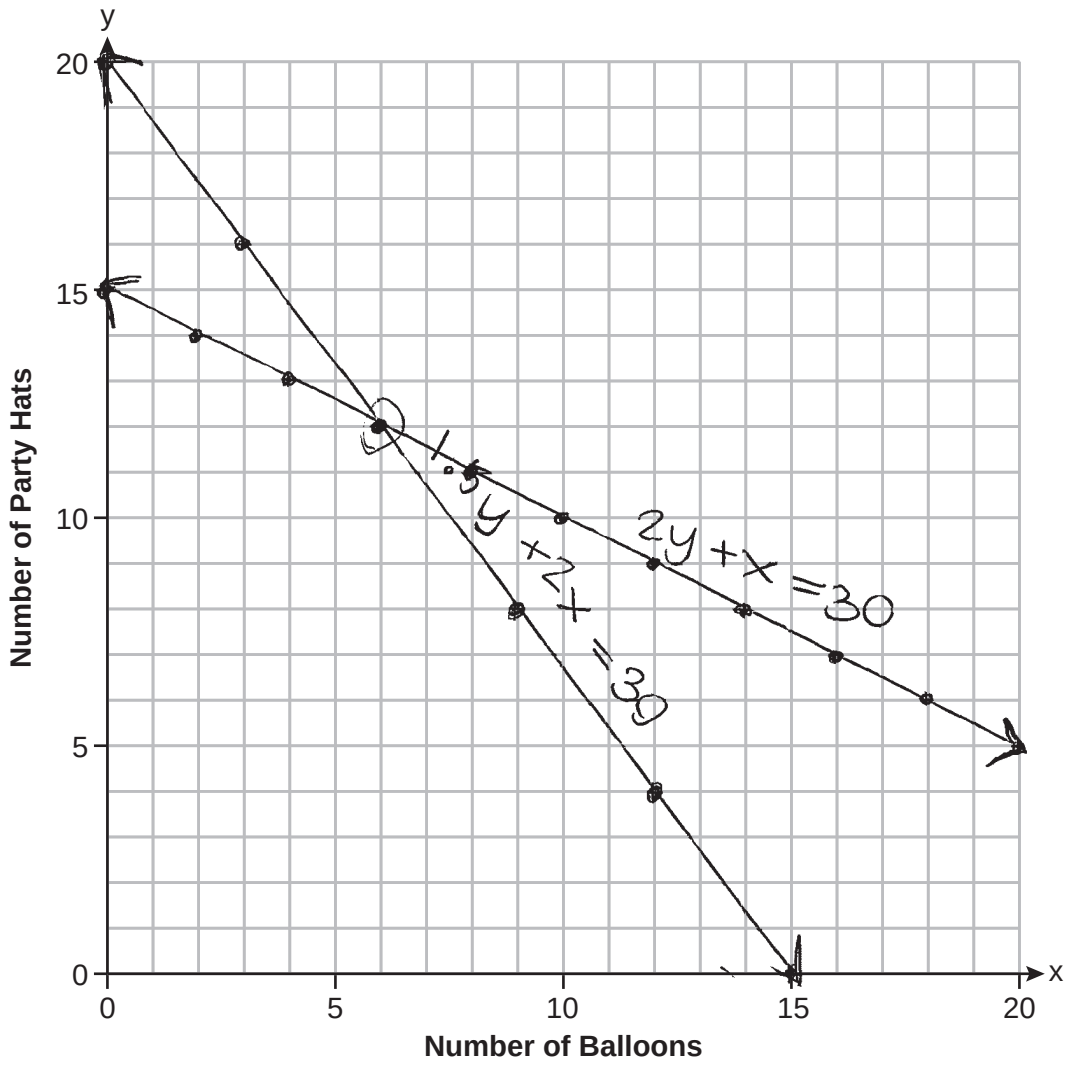
$1.50y + 2x = 30$
$-2x \quad -2x$
$\frac{1.5y}{1.5} = \frac{-2x + 30}{1.5}$
$y = -\frac{4}{3}x + 20$

Question 35 is continued on the next page.

Score 5: The student wrote one equation incorrectly.

Question 35 continued

Graph your system of equations on the set of axes below.



State the coordinates of the point of intersection of your lines.

(6, 12)

Explain what each coordinate means in the context of the problem.

The x-value of 6 represents the number of balloons Anna should buy, and the y-value of 12 represents the number of party hats she should buy.

Question 35

35 Anna plans to spend \$30 on balloons and party hats for her daughter's birthday party. Including tax, balloons cost \$2 each and party hats cost \$1.50 each. The number of party hats Anna needs is twice as many as the number of balloons.

If x represents the number of balloons and y represents the number of party hats, write a system of equations that can be used to represent this situation.

$2x + 1.5y = 30$

$y = 2x$

$m = \frac{20-0}{0-15} = \frac{20}{-15} = \frac{-4}{3}$

$2x + 1.5(0) = 30$ $2(0) + 1.5y = 30$

$2x = 30$ $1.5y = 30$

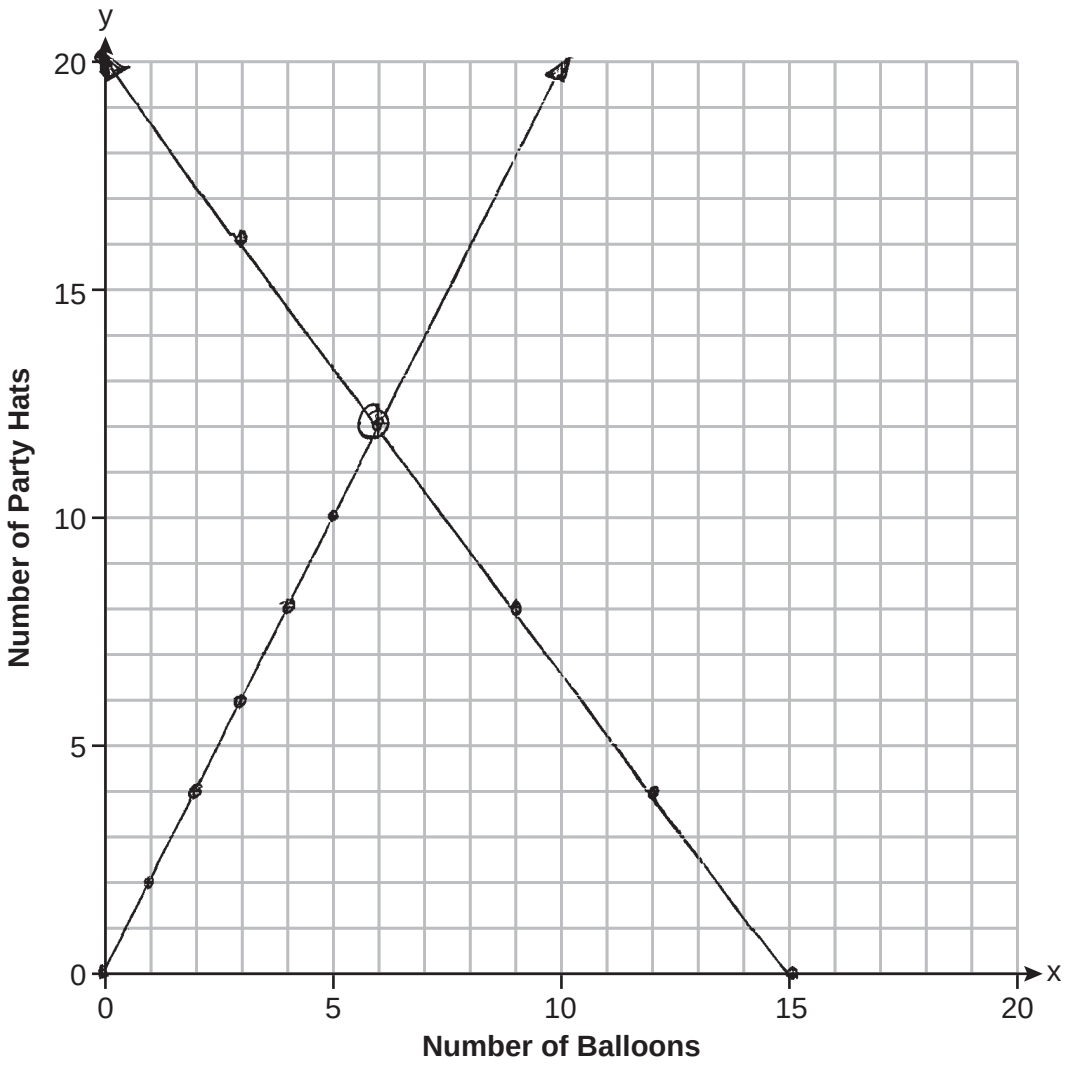
$x = 15$ $(15, 0)$ $(0, 20)$ $y = 20$

Question 35 is continued on the next page.

Score 4: The student did not label at least one of the lines they graphed and their explanation was incorrect.

Question 35 continued

Graph your system of equations on the set of axes below.



State the coordinates of the point of intersection of your lines.

(6, 12)

Explain what each coordinate means in the context of the problem.

For every balloon, the number of party hats doubles by the amount of balloons there are.

Question 35

35 Anna plans to spend $30 on balloons and party hats for her daughter's birthday party. Including tax, balloons cost $2 each and party hats cost $1.50 each. The number of party hats Anna needs is twice as many as the number of balloons.

If x represents the number of balloons and y represents the number of party hats, write a system of equations that can be used to represent this situation.

$2x + 1.50y = 30$

$x = 2y$

$2x + 1.50y = 30$

$30 = 2x + 1.50y$
$-1.50y \quad -1.50y$
$-1.50y = 2x - 30$
$-1.50 \quad -1.50 \quad -1.50$
$y = -\frac{4}{3}x + 20$

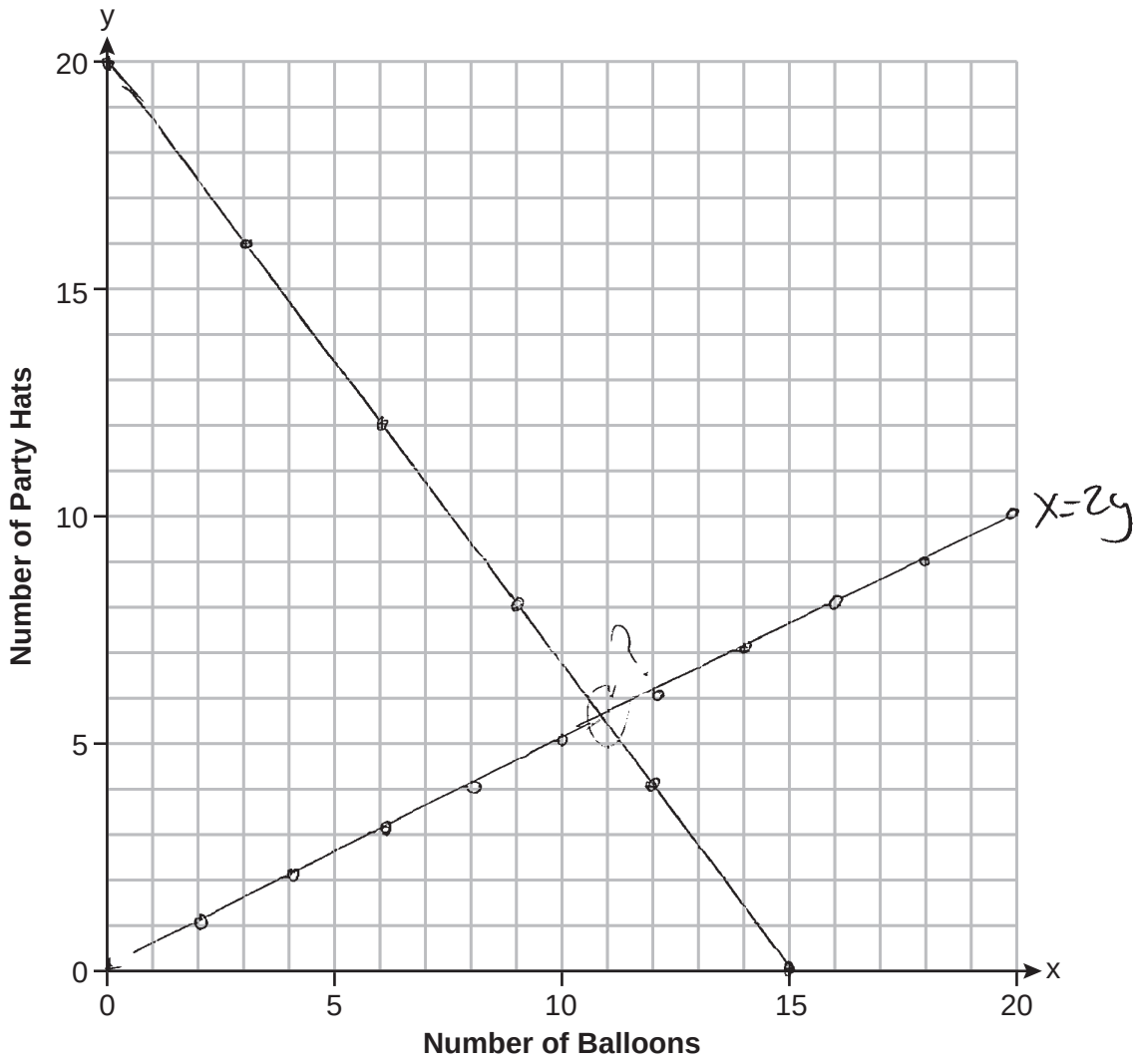
$\frac{2y}{2} = \frac{-x}{2}$
$y = \frac{1}{2}x$

Question 35 is continued on the next page.

Score 4: The student wrote one equation incorrectly and stated an incorrect point of intersection.

Question 35 continued

Graph your system of equations on the set of axes below.



State the coordinates of the point of intersection of your lines.

(11, 6)

Explain what each coordinate ~~means in the~~ context of the problem.

$30 will buy Anna 11 balloons and 6 party hats.

Question 35

35 Anna plans to spend $30 on balloons and party hats for her daughter's birthday party. Including tax, balloons cost $2 each and party hats cost $1.50 each. The number of party hats Anna needs is twice as many as the number of balloons.

If x represents the number of balloons and y represents the number of party hats, write a system of equations that can be used to represent this situation.

Hats $2x + 1.50y = 30$

$y = 2x$

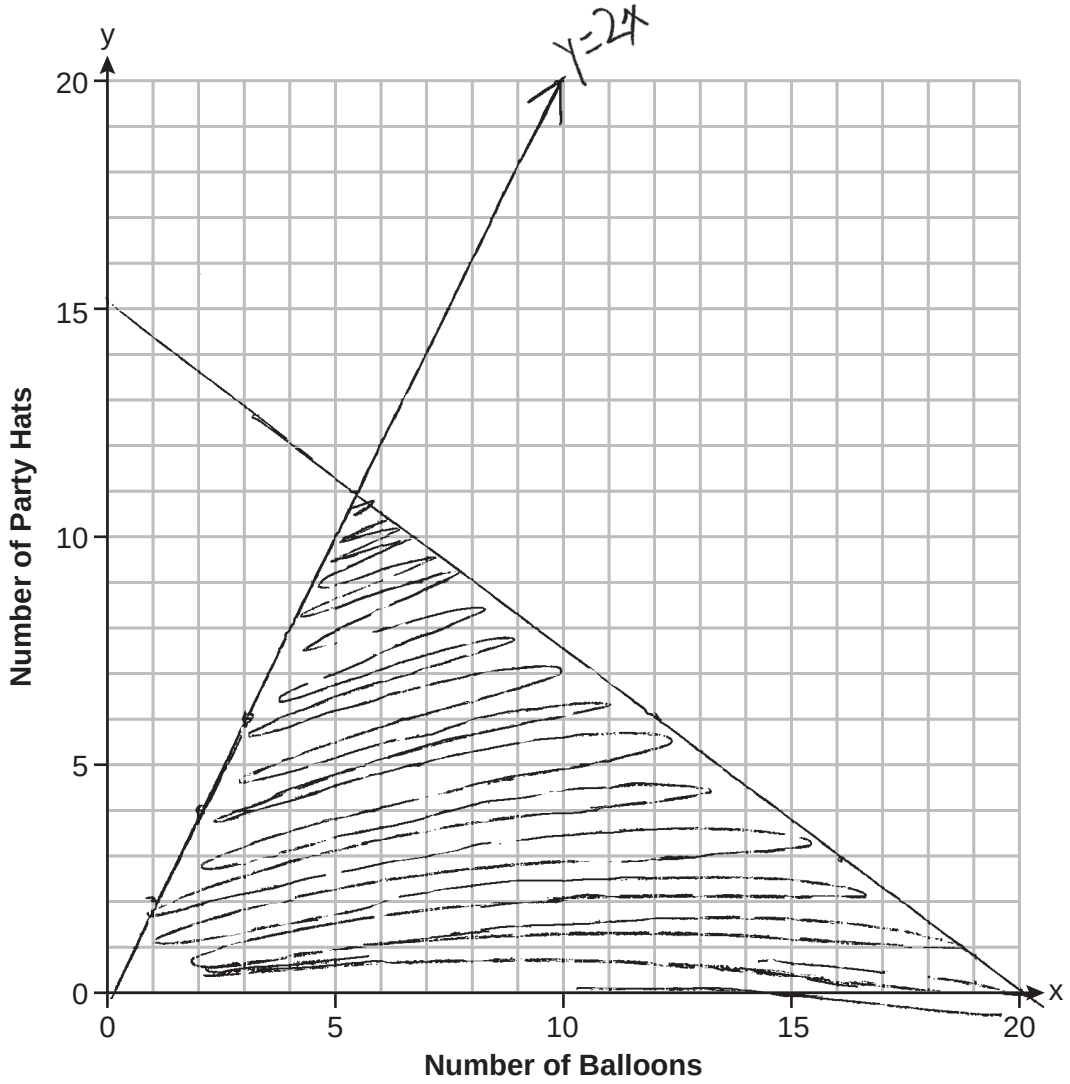
$y = 2x$ $y = -\frac{4}{3}x + 20$

Question 35 is continued on the next page.

Score 3: The student wrote two correct equations and graphed and labeled $y = 2x$ correctly.

Question 35 continued

Graph your system of equations on the set of axes below.



State the coordinates of the point of intersection of your lines.

(11, 5.5)

Explain what each coordinate means in the context of the problem.

where is the max amount

Question 35

35 Anna plans to spend \$30 on balloons and party hats for her daughter's birthday party. Including tax, balloons cost \$2 each and party hats cost \$1.50 each. The number of party hats Anna needs is twice as many as the number of balloons.

If x represents the number of balloons and y represents the number of party hats, write a system of equations that can be used to represent this situation.

$2x + 1.50y = 30$ $\quad \frac{2x + 1.50y}{1.50} = \frac{30}{1.50} \cdot 2x$

$x + 2y = 30$ $\quad 2x + y = 20$

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

$x + y = 15$ $\quad y = 15 - x$ $\quad y = 20 - 2x$

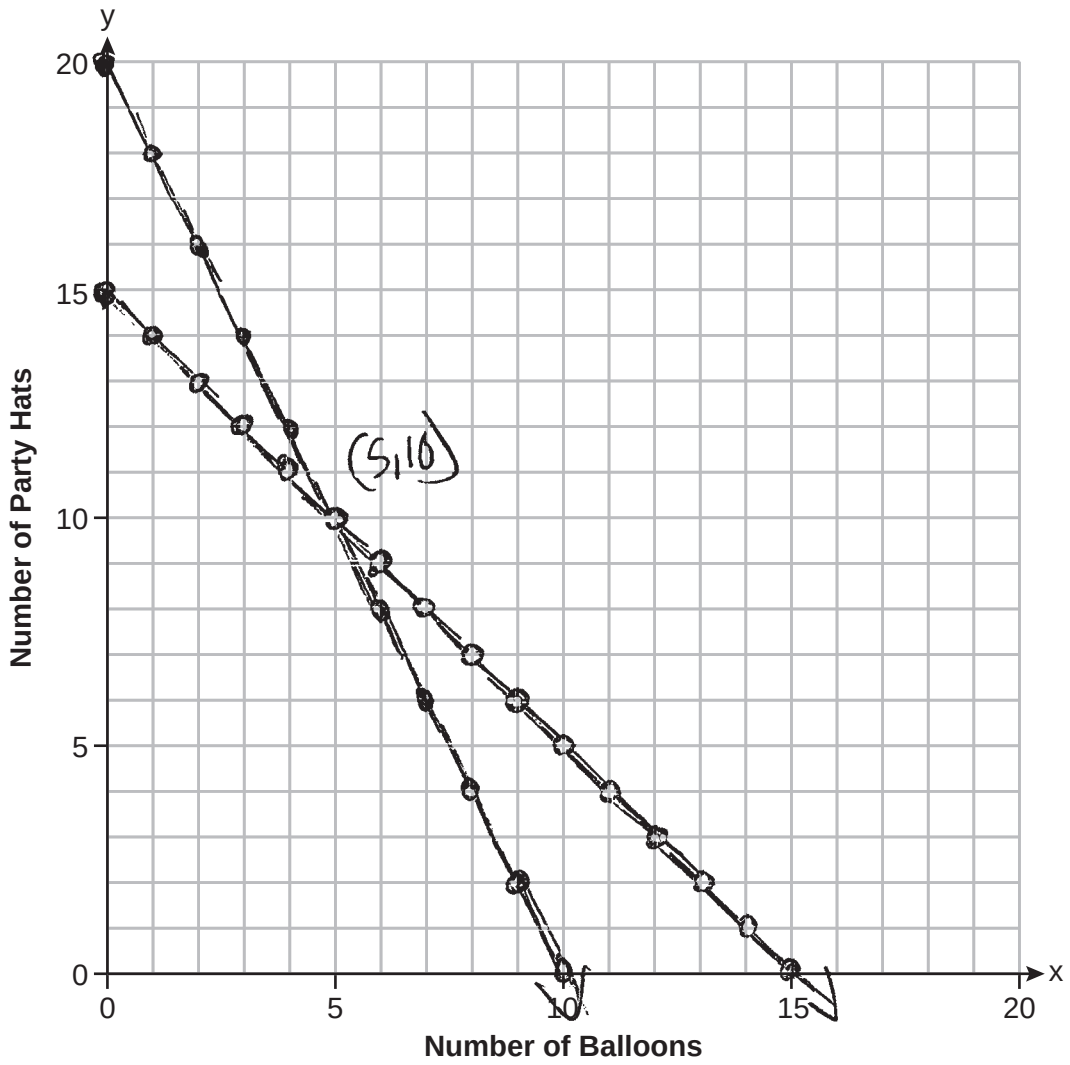
$-x \quad -x$

Question 35 is continued on the next page.

Score 2: The student wrote one correct equation and stated an appropriate point of intersection.

Question 35 continued

Graph your system of equations on the set of axes below.



State the coordinates of the point of intersection of your lines.

(5, 10)

Explain what each coordinate means in the context of the problem.

each coordinate is equal to how many ballons there will be when there is a certain number of party hats and how many party hats there will be when there is a certain amount of ballons.

Question 35

35 Anna plans to spend \$30 on balloons and party hats for her daughter's birthday party. Including tax, balloons cost \$2 each and party hats cost \$1.50 each. The number of party hats Anna needs is twice as many as the number of balloons.

If x represents the number of balloons and y represents the number of party hats, write a system of equations that can be used to represent this situation.

$2x + 1.5y = 30$ $\quad y = -\frac{4}{3}x + 20$

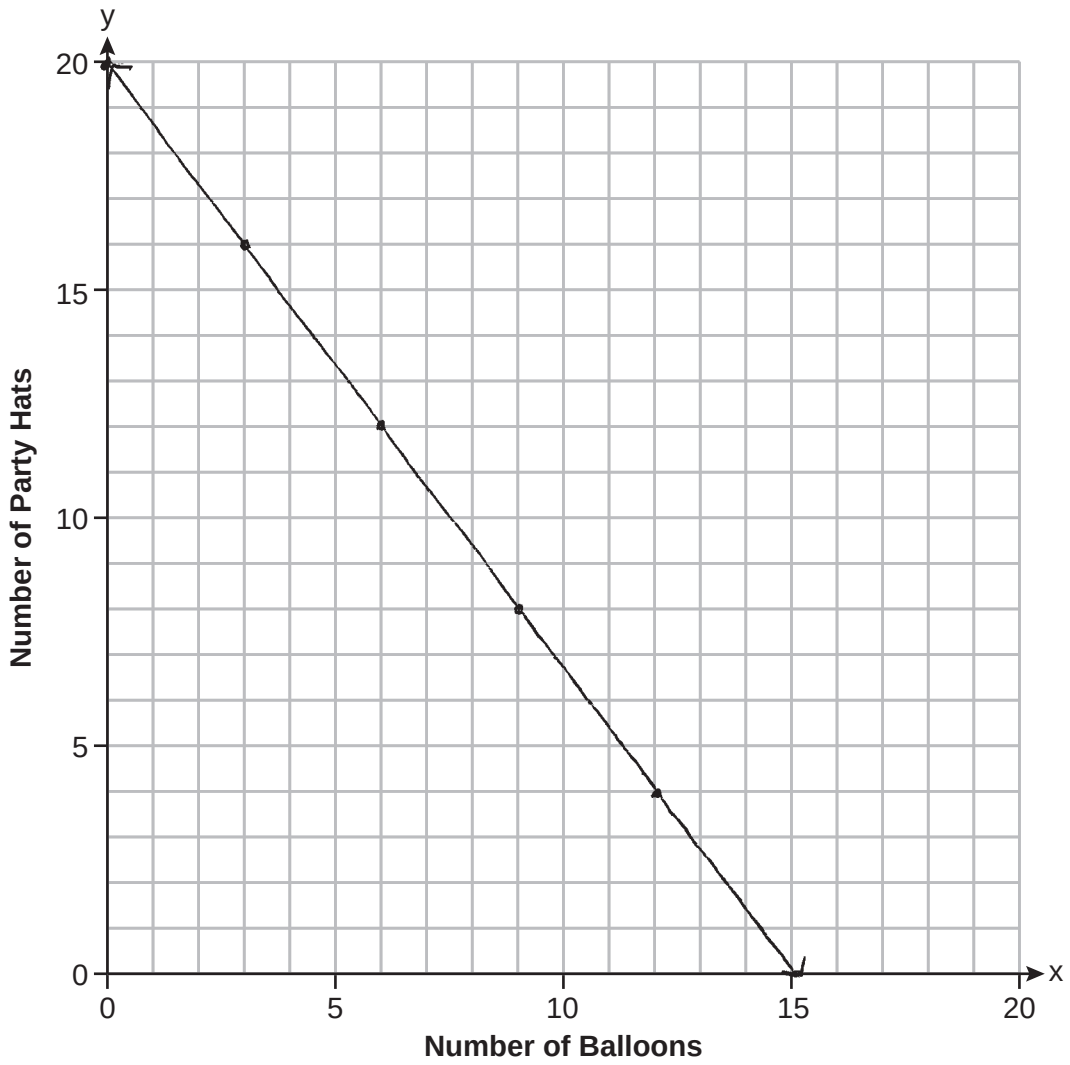
$x + 2y =$

Question 35 is continued on the next page.

Score 2: The student wrote one equation and graphed it correctly.

Question 35 continued

Graph your system of equations on the set of axes below.



State the coordinates of the point of intersection of your lines.

Explain what each coordinate means in the context of the problem.

Question 35

35 Anna plans to spend \$30 on balloons and party hats for her daughter's birthday party. Including tax, balloons cost \$2 each and party hats cost \$1.50 each. The number of party hats Anna needs is twice as many as the number of balloons.

If x represents the number of balloons and y represents the number of party hats, write a system of equations that can be used to represent this situation.

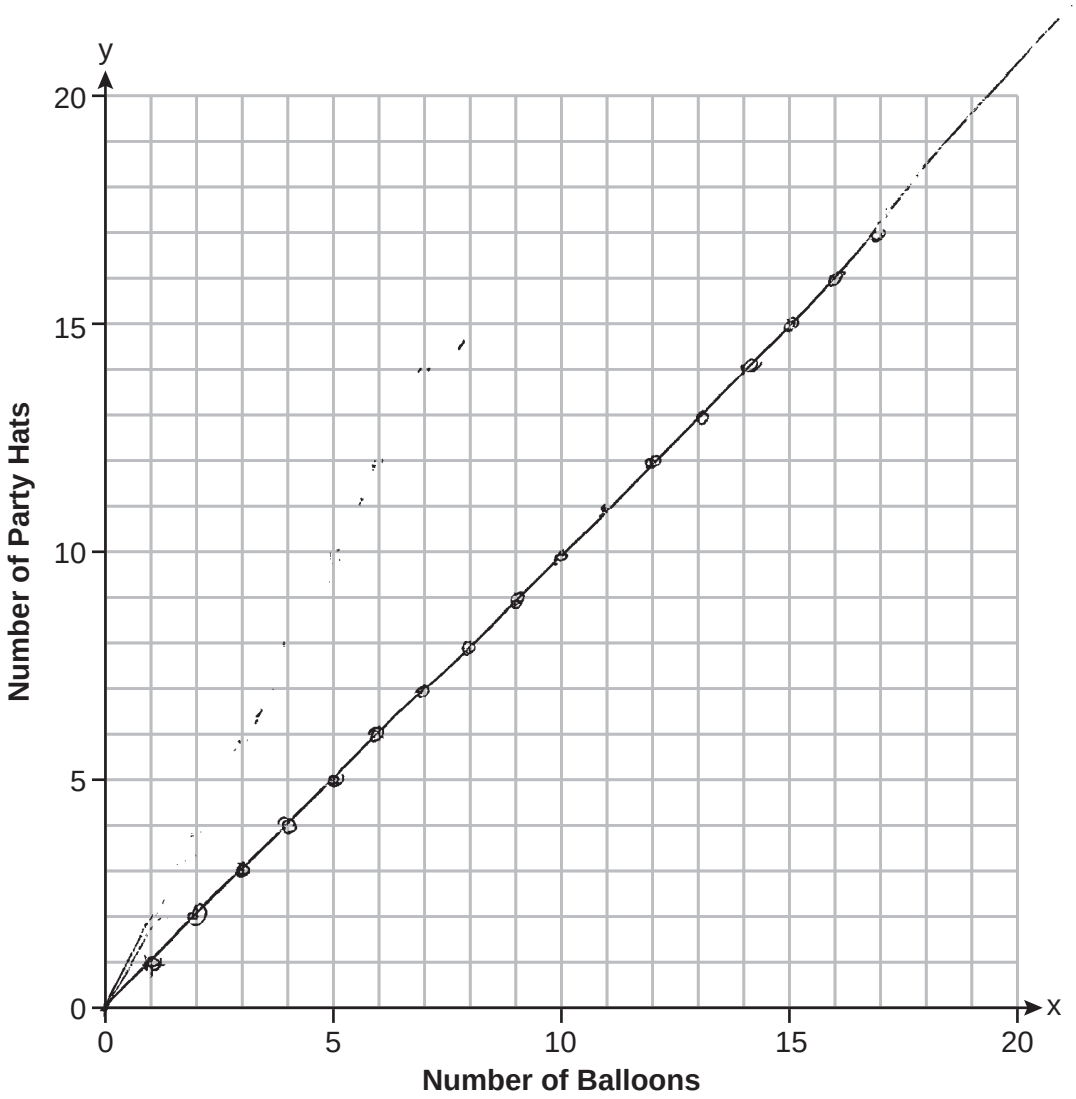
$30=2x+1.5y$

Question 35 is continued on the next page.

Score 1: The student wrote one equation correctly.

Question 35 continued

Graph your system of equations on the set of axes below.



State the coordinates of the point of intersection of your lines.

Explain what each coordinate means in the context of the problem.

Question 35

35 Anna plans to spend \$30 on balloons and party hats for her daughter's birthday party. Including tax, balloons cost \$2 each and party hats cost \$1.50 each. The number of party hats Anna needs is twice as many as the number of balloons.

If x represents the number of balloons and y represents the number of party hats, write a system of equations that can be used to represent this situation.

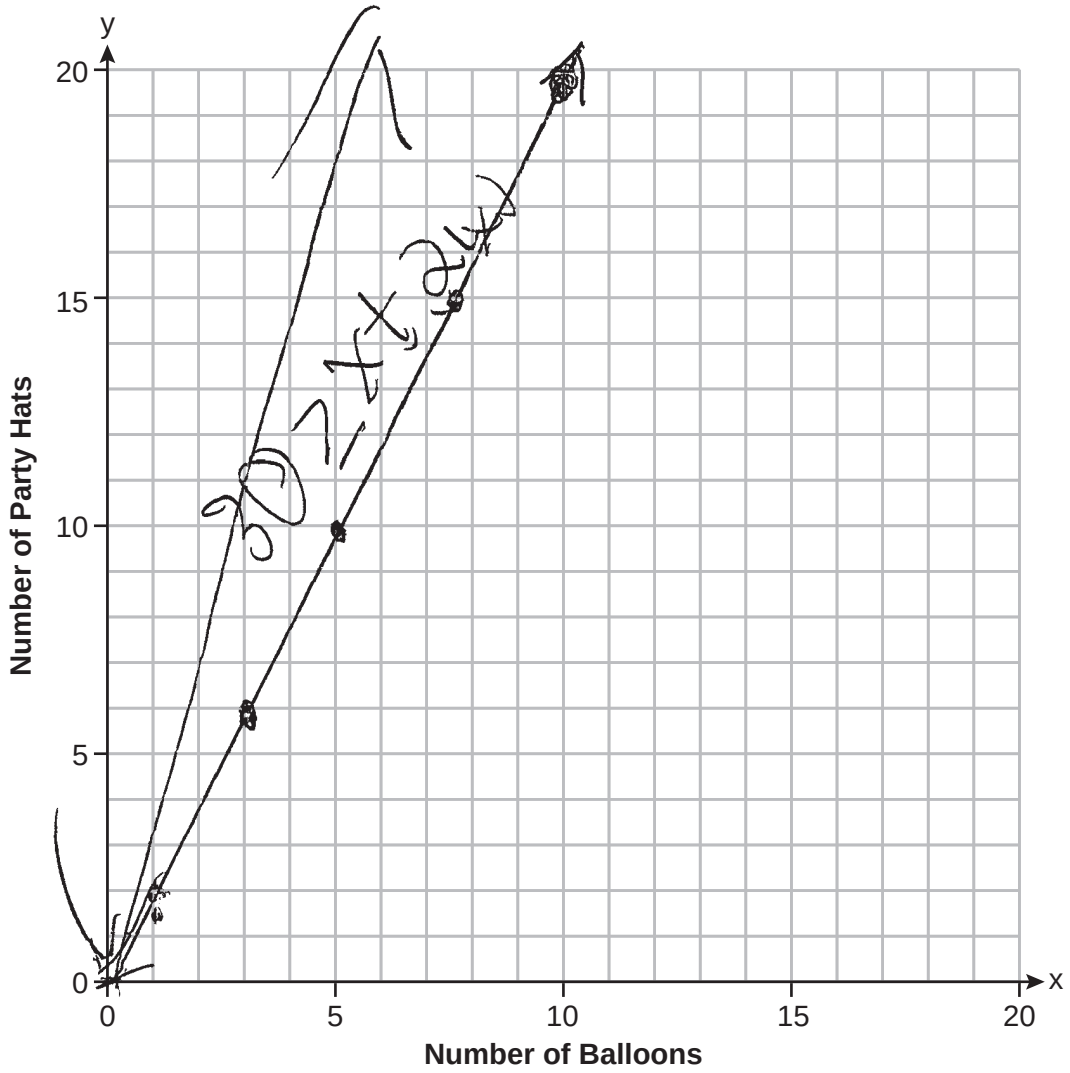
$30 = x + 2y$ $30 \geq 2x + 1.5y$

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

Graph your system of equations on the set of axes below.



State the coordinates of the point of intersection of your lines.

(1, 3) (2, 6)

Explain what each coordinate means in the context of the problem.

they each mean how many of the balloons/hats there are

Question 35

35 Anna plans to spend \$30 on balloons and party hats for her daughter's birthday party. Including tax, balloons cost \$2 each and party hats cost \$1.50 each. The number of party hats Anna needs is twice as many as the number of balloons.

If x represents the number of balloons and y represents the number of party hats, write a system of equations that can be used to represent this situation.

X=balloons y=hats

$30 = 2x + 1.5y^2$

$\frac{1.5y^2}{1.5} = \frac{30 - 2x}{1.5}$

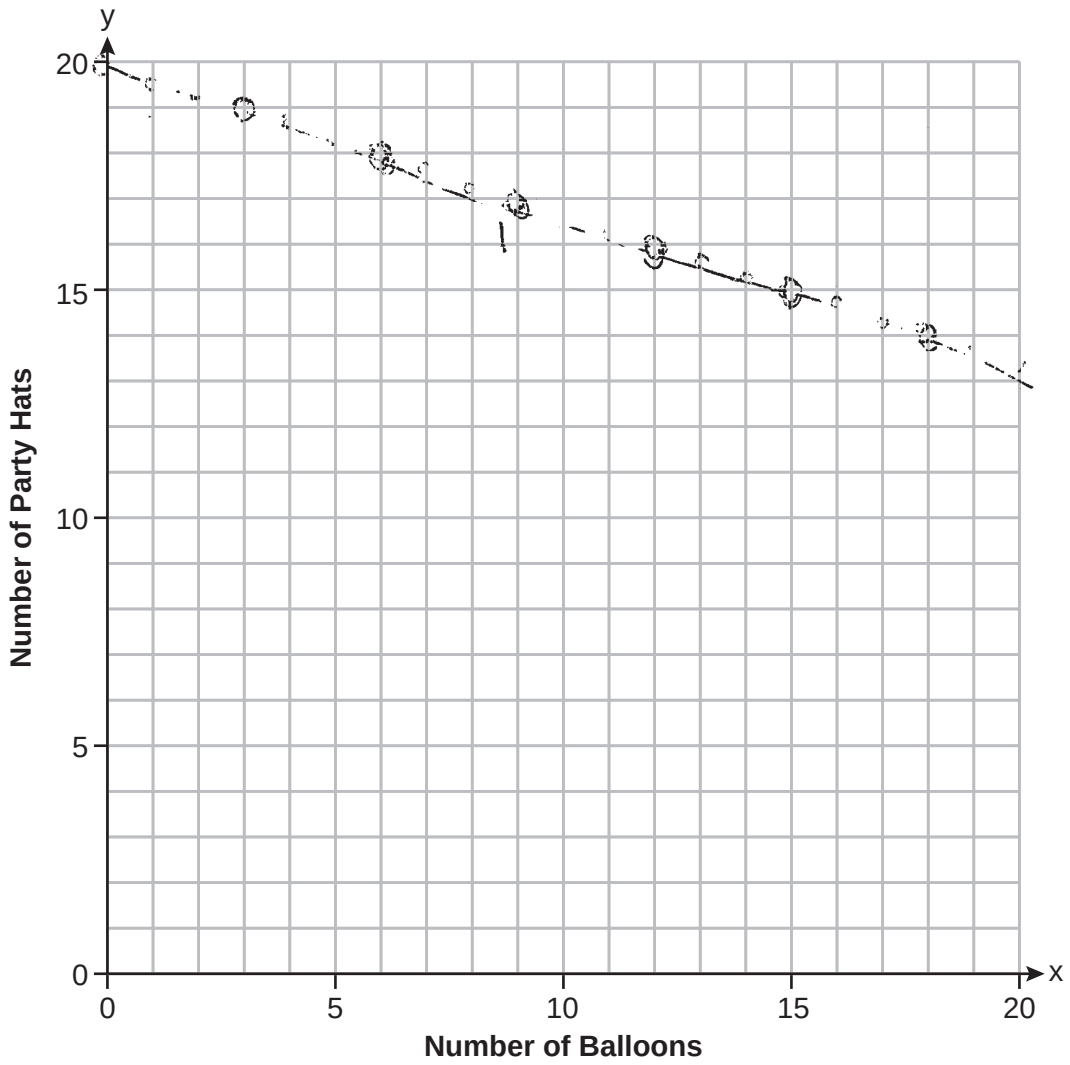
$y^2 = 20 - 3x$

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

Graph your system of equations on the set of axes below.



State the coordinates of the point of intersection of your lines.

Explain what each coordinate means in the context of the problem.

Each coordinate shows the relationship between the number of balloons vs the number of hats.

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

Regents Examination in Algebra I – JANUARY 2025

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

(Use for the January 2025 exam only.)

Raw Score	Scale Score	Performance Level
82	**100**	5
81	**99**	5
80	**98**	5
79	**96**	5
78	**95**	5
77	**93**	5
76	**92**	5
75	**91**	5
74	**90**	5
73	**89**	5
72	**88**	5
71	**87**	5
70	**86**	5
69	**86**	5
68	**85**	5
67	**84**	4
66	**84**	4
65	**83**	4
64	**82**	4
63	**82**	4
62	**81**	4
61	**81**	4
60	**80**	4
59	**80**	4
58	**79**	4
57	**79**	4
56	**78**	4
55	**78**	4

Raw Score	Scale Score	Performance Level
54	**77**	4
53	**77**	4
52	**76**	4
51	**76**	4
50	**75**	4
49	**75**	4
48	**75**	4
47	**74**	3
46	**74**	3
45	**73**	3
44	**73**	3
43	**72**	3
42	**72**	3
41	**71**	3
40	**71**	3
39	**70**	3
38	**70**	3
37	**69**	3
36	**69**	3
35	**68**	3
34	**68**	3
33	**67**	3
32	**67**	3
31	**66**	3
30	**66**	3
29	**65**	3
28	**64**	2
27	**64**	2

Raw Score	Scale Score	Performance Level
26	**63**	2
25	**62**	2
24	**61**	2
23	**60**	2
22	**59**	2
21	**58**	2
20	**57**	2
19	**55**	2
18	**54**	1
17	**52**	1
16	**50**	1
15	**49**	1
14	**47**	1
13	**45**	1
12	**42**	1
11	**40**	1
10	**37**	1
9	**35**	1
8	**32**	1
7	**28**	1
6	**25**	1
5	**22**	1
4	**18**	1
3	**14**	1
2	**10**	1
1	**5**	1
0	**0**	1

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.