

**ALGEBRA I**

Tuesday, August 19, 2025 — 8:30 to 11:30 a.m., only

Student Name \_\_\_\_\_

School Name \_\_\_\_\_

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

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

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

This examination has four parts, with a total of 35 questions. You must answer all questions in this examination. Record your answers to the Part I multiple-choice questions on the separate answer sheet. Write your answers to the questions in **Parts II, III, and IV** directly in this booklet. All work should be written in pen, except for graphs and drawings, which should be done in pencil. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale.

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

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

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

**Notice ...**

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

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

## Part I

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

Use this space for  
computations.

1 Which expression is equivalent to  $100x^2 - 16$ ?

- (1)  $(50x - 8)(50x + 8)$                       (3)  $(10x - 4)(10x + 4)$   
(2)  $(50x - 8)(50x - 8)$                       (4)  $(10x - 4)(10x - 4)$

2 Josie has \$2.30 in dimes and quarters. She has two more dimes than quarters. Which equation below can be used to determine  $x$ , the number of quarters she has?

- (1)  $0.35(2x + 2) = 2.30$   
(2)  $0.25(x + 2) + 0.10x = 2.30$   
(3)  $0.25x + 0.10(x + 2) = 2.30$   
(4)  $0.25x + 0.10(x - 2) = 2.30$

3 If  $g(x) = -2x^2 + 16$ , then  $g(-3)$  equals

- (1)  $-20$     (3)  $34$   
(2)  $-2$     (4)  $52$

4 What are the zeros of  $f(x) = x^2 - 8x - 20$ ?

- (1)  $10$  and  $2$                                       (3)  $-10$  and  $2$   
(2)  $10$  and  $-2$                                       (4)  $-10$  and  $-2$

Use this space for  
computations.

- 5 Which point lies on the graph of  $y = 3x^2 - \frac{1}{4}x + 3$ ?
- (1)  $(-2, 15.5)$                       (3)  $(1, 6.25)$   
(2)  $(-1, 5.75)$                       (4)  $(2, 15.5)$
- 6 Given  $f(x) = x^2$  and  $g(x) = 8x - 15$  graphed on the same set of axes, which value(s) of  $x$  will make  $f(x) = g(x)$ ?
- (1) 3, only                              (3) 3 and 5  
(2) 9, only                              (4) 9 and 25
- 7 Which trinomial is written in standard form and has a constant term of five?
- (1)  $x^5 - 4x^2 + 10$                       (3)  $5x^4 - 3x^2 + 1$   
(2)  $2x^2 + 6x^4 + 5$                       (4)  $4x^5 - 8x^2 + 5$
- 8 When solving  $x^2 + 6x = -8$  for  $x$ , a student wrote  $x^2 + 6x + 8 = 0$  as their first step. Which property justifies this step?
- (1) associative property  
(2) commutative property  
(3) zero property of addition  
(4) addition property of equality



Use this space for computations.

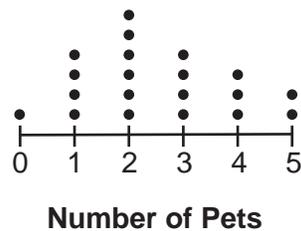
- 12 Fred recorded the number of minutes he read each day, from Monday through Friday. His results are shown in the table.

Day	Number of Minutes Read
1	12
2	16
3	19
4	27
5	29

What is the correlation coefficient, to the nearest thousandth, and strength of the linear model of these data?

- (1) 0.984 and strong                      (3) 0.984 and weak  
(2) 0.968 and strong                      (4) 0.968 and weak
- 13 Given  $f(x) = x^2$ , which function will shift  $f(x)$  to the left 3 units?
- (1)  $g(x) = x^2 + 3$                       (3)  $j(x) = (x - 3)^2$   
(2)  $h(x) = x^2 - 3$                       (4)  $k(x) = (x + 3)^2$

- 14 A class of 20 students was surveyed to determine the number of pets each student owned. The data are represented in the dot plot below.



Which statement about the data is correct?

- (1) The mean and the median are the same.  
(2) The median and the mode are the same.  
(3) The mean and the mode are the same.  
(4) The mean, median, and mode are all the same.



Use this space for  
computations.

19 The sum of  $(x + 7)^2$  and  $(x - 3)^2$  is

- (1)  $2x^2 + 58$                       (3)  $2x^2 + 8x + 58$   
(2)  $2x^4 + 58$                       (4)  $2x^4 + 8x^2 + 58$

20 The product of  $2\sqrt{10}$  and  $3\sqrt{2}$  is

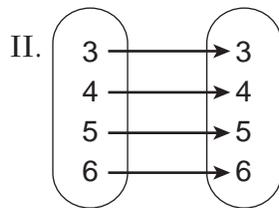
- (1)  $12\sqrt{5}$                               (3)  $24\sqrt{5}$   
(2)  $5\sqrt{20}$                             (4)  $5\sqrt{12}$

21 When  $6x^3 - 2x + 8$  is subtracted from  $5x^3 + 3x - 4$ , the result is

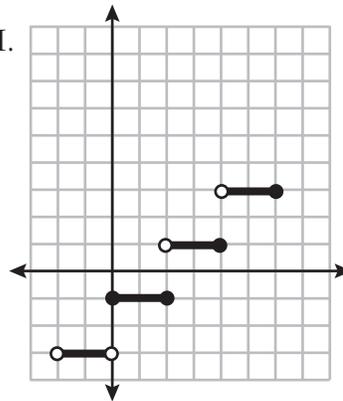
- (1)  $x^3 - 5x + 12$                       (3)  $-x^3 + 5x - 12$   
(2)  $x^3 + x + 4$                         (4)  $-x^3 + x + 4$

22 Three relations are shown below.

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



III.



Which relations represent a function?

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

- 23 The method of substitution was used to solve the system of equations below:

$$\begin{aligned}4x - 7y &= 7 \\ x - y &= -1\end{aligned}$$

Which equation is a correct first step when using this method?

- (1)  $x = y - 1$                       (3)  $3x - 6y = 8$   
(2)  $y = x - 1$                       (4)  $5x - 8y = 6$
- 24 In 2009, Usain Bolt, a sprinter from Jamaica, set the world record in the 100-meter dash with a time of 9.58 seconds. His approximate speed, in kilometers per hour, can be found using which conversion?

- (1)  $\frac{9.58 \text{ sec}}{100 \text{ m}} \cdot \frac{1000 \text{ m}}{1 \text{ km}} \cdot \frac{1 \text{ min}}{60 \text{ sec}} \cdot \frac{1 \text{ hr}}{60 \text{ min}}$   
(2)  $\frac{100 \text{ m}}{9.58 \text{ sec}} \cdot \frac{60 \text{ sec}}{1 \text{ min}} \cdot \frac{1000 \text{ m}}{1 \text{ km}} \cdot \frac{60 \text{ min}}{1 \text{ hr}}$   
(3)  $\frac{100 \text{ m}}{9.58 \text{ sec}} \cdot \frac{1 \text{ km}}{1000 \text{ m}} \cdot \frac{1 \text{ min}}{60 \text{ sec}} \cdot \frac{1 \text{ hr}}{60 \text{ min}}$   
(4)  $\frac{100 \text{ m}}{9.58 \text{ sec}} \cdot \frac{60 \text{ sec}}{1 \text{ min}} \cdot \frac{1 \text{ km}}{1000 \text{ m}} \cdot \frac{60 \text{ min}}{1 \text{ hr}}$
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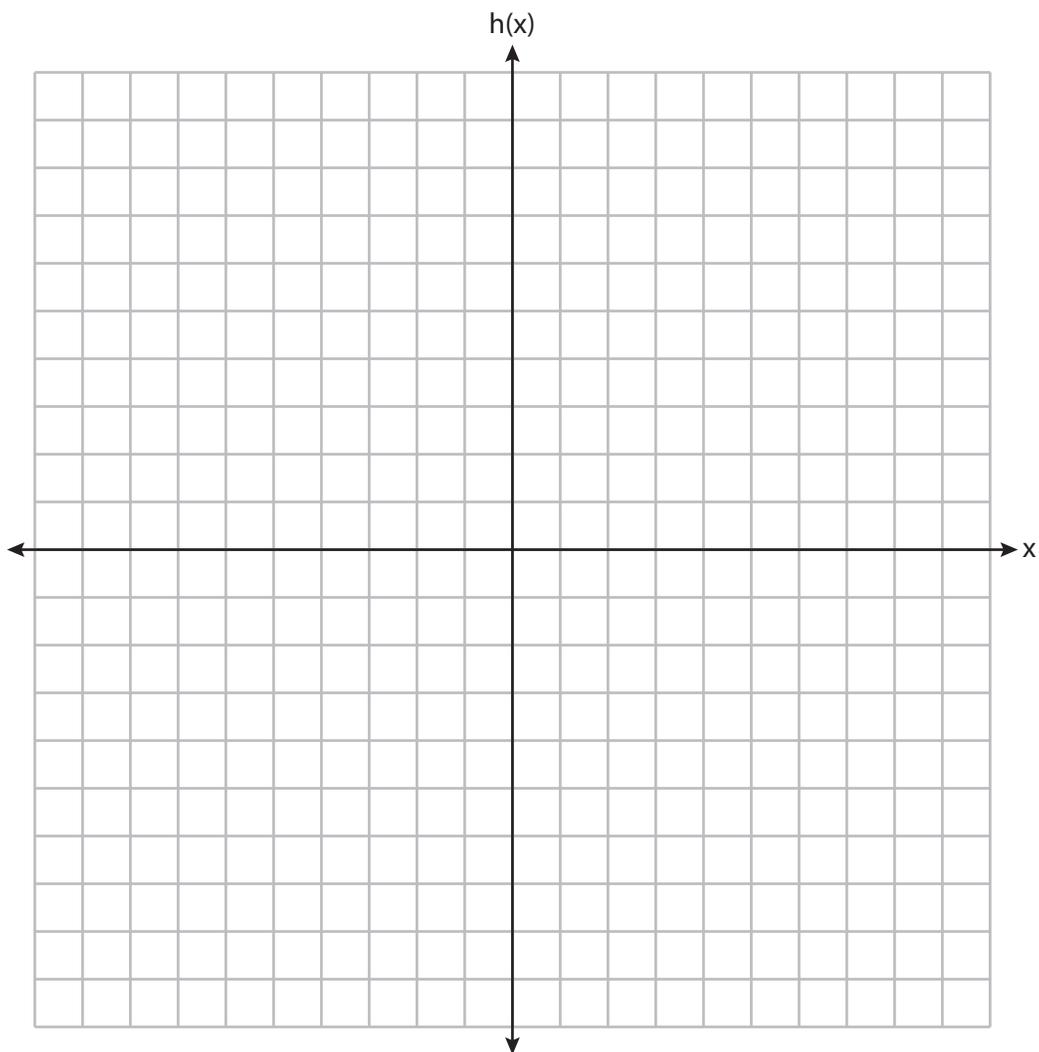
## Part II

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 Solve the equation  $\frac{1}{6}(4x + 12) = 9$  algebraically.

**26** Is the sum of  $3\sqrt{2}$  and 5 rational or irrational? Explain your answer.

27 Graph  $h(x) = |x - 2|$  over the domain  $-4 \leq x \leq 4$ .



**28** A survey was given to 180 cell phone owners about the brand of phone they owned. The results showed that 59 adults owned Brand *B* and 32 teenagers owned Brand *A*. Of all the people surveyed, 40% owned Brand *A*. Complete the two-way frequency table below.

	<b>Brand A</b>	<b>Brand B</b>	<b>Total</b>
<b>Adults</b>			
<b>Teenagers</b>			
<b>Total</b>			

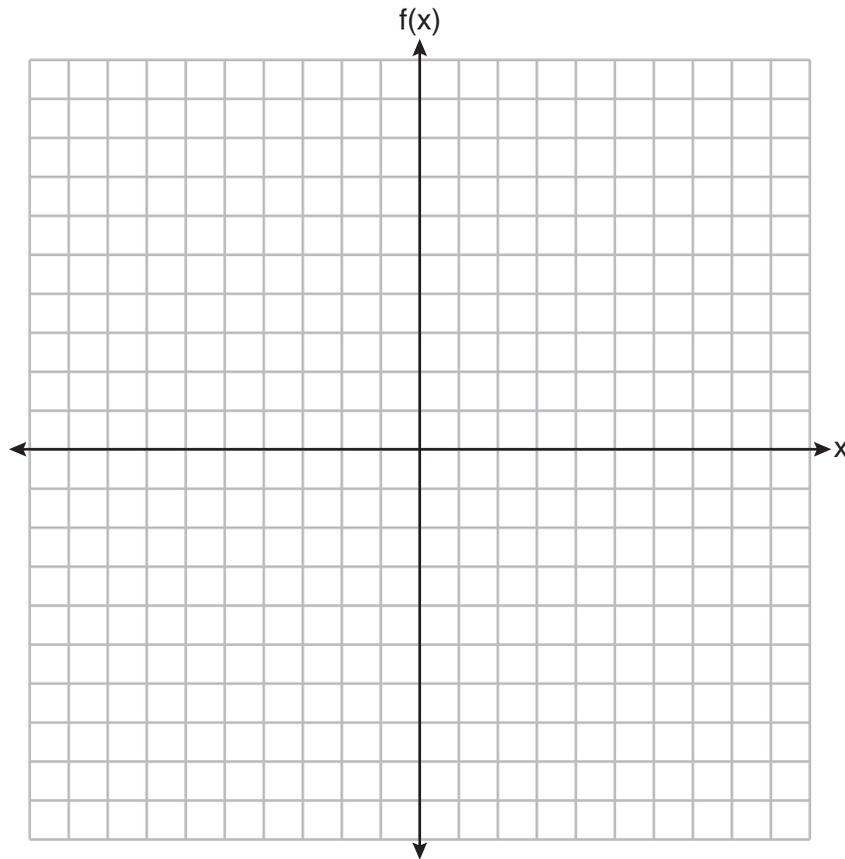
**29** Determine the 8th term of a geometric sequence whose first term is 5 and whose common ratio is 3.

**30** Using the method of completing the square, express  $x^2 + 14x - 28 = 0$  in the form  $(x - p)^2 = q$ .

### 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  $f(x) = -\frac{1}{3}x^2 + 4$  on the set of axes below.



State the vertex of this function.

State the equation of the axis of symmetry of this function.

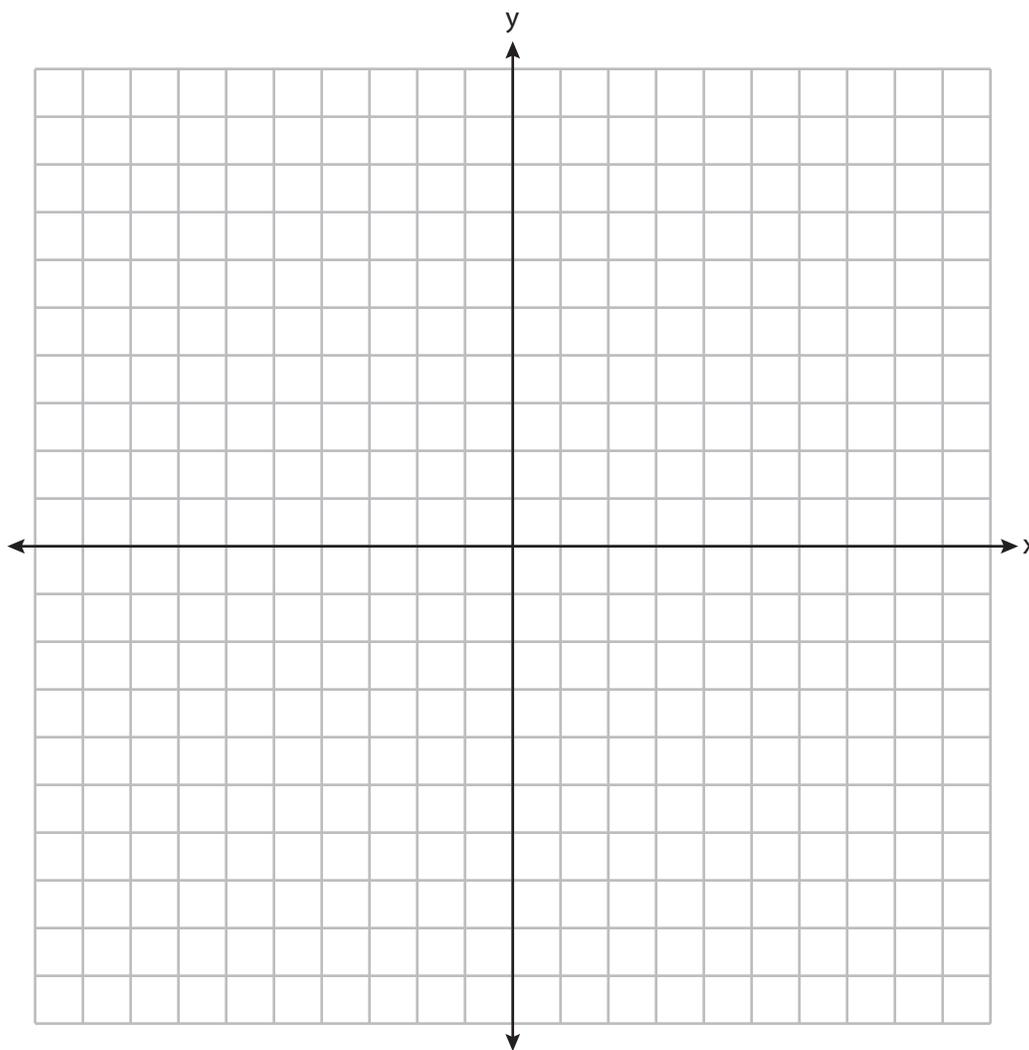
**32** Vince wants to rent a canoe while he is on vacation. The canoe rental company charges \$18 for the first hour and \$7.50 for each additional hour,  $x$ . If Vince has \$78 to spend on renting a canoe, write an inequality in terms of  $x$  that models this situation.

Algebraically determine the maximum number of hours that Vince could rent a canoe.

33 Graph the following system of inequalities on the set of axes below.

$$y \geq -\frac{1}{2}x - 3$$

$$y - 2x < 5$$



State the coordinates of a point that is in the solution to this system. Justify your answer.

**34** Using the quadratic formula, solve  $x^2 - 6x + 3 = 0$ .

Express the answer in simplest radical form.

## 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** Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

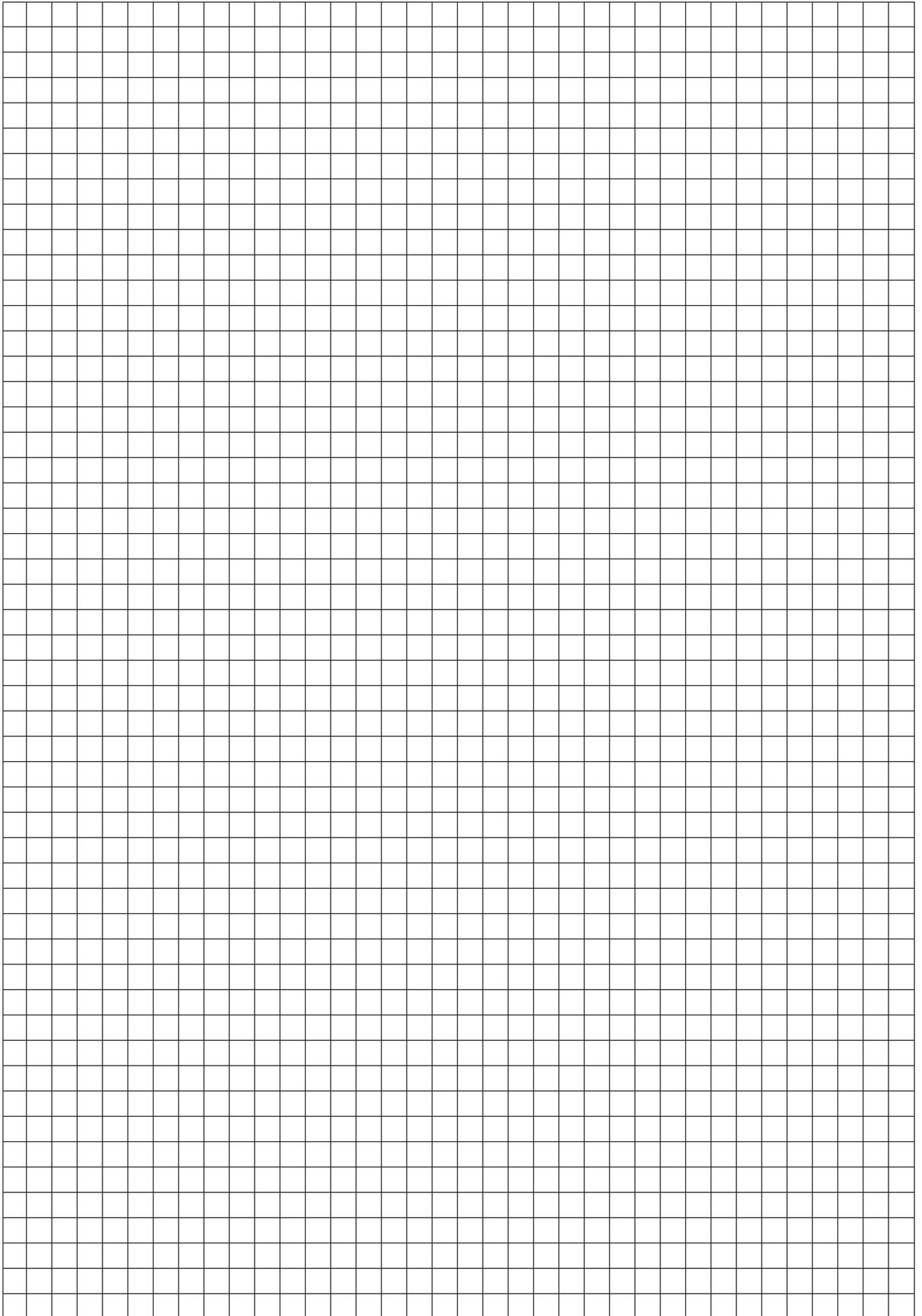
A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.



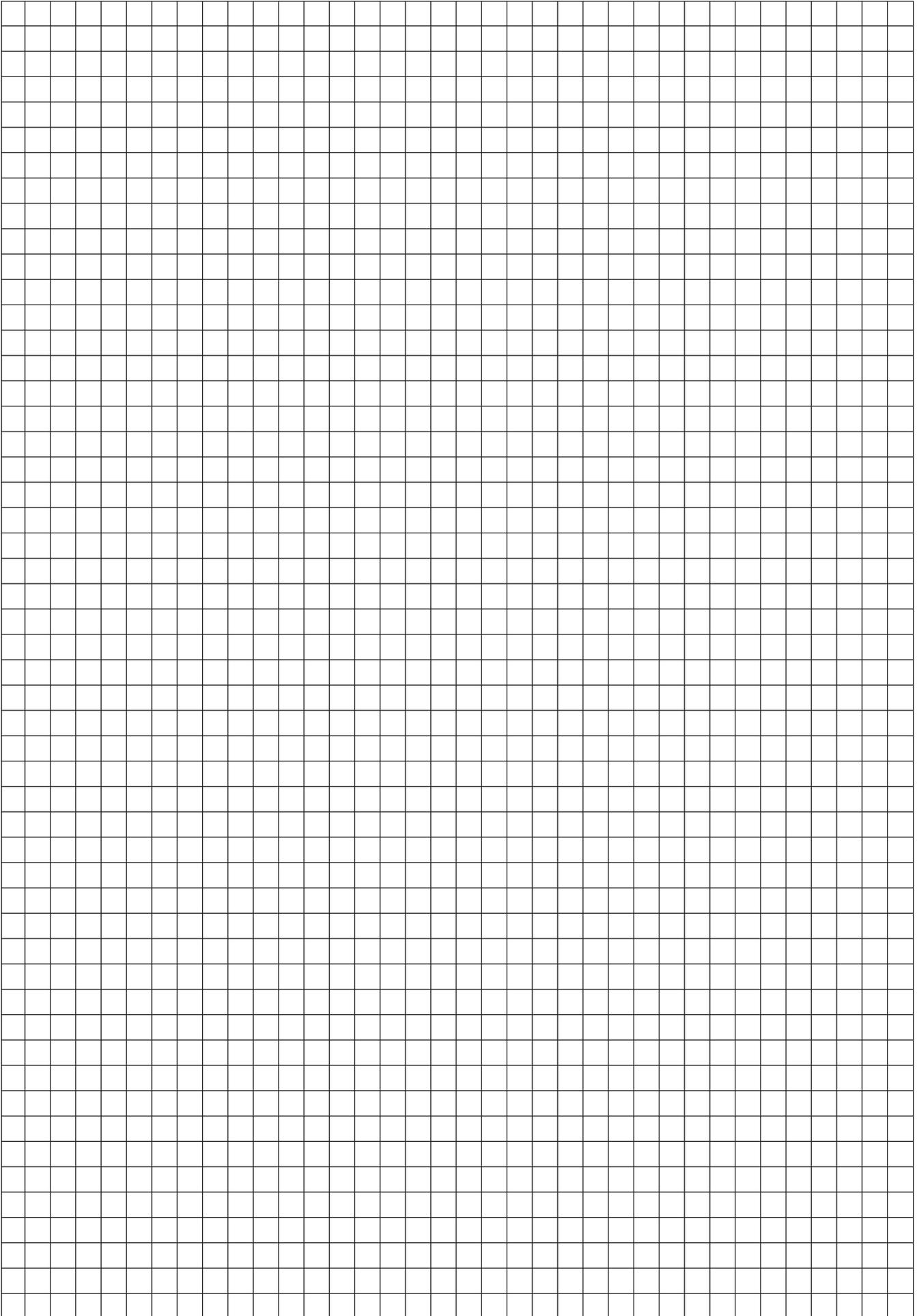
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## Reference Sheet for Algebra I

### 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	$y = ax^2 + bx + c$	Exponential Equation	$y = ab^x$
Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	Annual Compound Interest	$A = P(1 + r)^n$
Equation of the Axis of Symmetry	$x = -\frac{b}{2a}$	Arithmetic Sequence	$a_n = a_1 + d(n - 1)$
Slope	$m = \frac{y_2 - y_1}{x_2 - x_1}$	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 = $Q_3 + 1.5(IQR)$

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**Regents Examination in Algebra I – August 2025****Scoring Key: Part I (Multiple-Choice Questions)**

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

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

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

**Key**

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

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

Tuesday, August 19, 2025 — 8:30 to 11:30 a.m., only

### RATING GUIDE

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. Check this web site at: <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 Tuesday, August 19, 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]** 10.5 or equivalent, 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]** 10.5, but a method other than algebraic is used.

*or*

**[1]** 10.5, but no work is shown.

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

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

**[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 full display of the calculator and irrational are written, but the explanation is incomplete, missing, or incorrect.

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

*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.

(27) [2] A correct graph is drawn over the given domain.

[1] One graphing error is made.

*or*

[1] One conceptual error is made.

*or*

[1] A correct graph is drawn, but not over the given domain.

[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] The frequency table is completed correctly.

	Brand A	Brand B	Total
Adults	40	59	99
Teenagers	32	49	81
Total	72	108	180

[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 total number of people who own Brand A is written correctly in the table, but no further correct work is shown.

[0] Only the given information of 180, 59, and 32 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.

(29) **[2]** 10,935, and correct work is shown.

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

***or***

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

***or***

**[1]**  $a_n = 5(3)^{n-1}$  or the expression  $5(3)^{n-1}$  is written, but no further correct work is shown.

***or***

**[1]** 10,935, 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]**  $(x + 7)^2 = 77$ , 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]**  $(x + 7)^2 = 77$ , 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] A correct graph is drawn,  $(0,4)$  and  $x = 0$  are stated.

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

*or*

[3] Appropriate work is shown, but only  $(0,4)$  or  $x = 0$  is stated correctly.

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

*or*

[2] The function is graphed correctly, but no further correct work is shown.

*or*

[2]  $(0,4)$  and  $x = 0$  are stated, but no further correct work is shown.

[1]  $(0,4)$  or  $x = 0$  is 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]  $18 + 7.50x \leq 78$ , 9, 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 8, the number of additional hours, but no further correct work is shown.

*or*

[3] Appropriate work is shown, but a method other than algebraic is used.

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

*or*

[2]  $18 + 7.50x \leq 78$  is written, but no further correct work is shown.

[1]  $18 + 7.50x = 78$  is written, but no further correct work is shown.

*or*

[1] 9, 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] Both inequalities are graphed correctly and at least one is labeled, a correct point is stated, and a correct justification is given.

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

*or*

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

*or*

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

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

*or*

[2] A correct point is stated and a correct justification is given, but no further correct work is shown.

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

*or*

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

*or*

[1]  $y = -\frac{1}{2}x - 3$  and  $y - 2x = 5$  are graphed correctly, and at least one is labeled, but no further correct work is shown.

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

(34) [4]  $\frac{6 \pm 2\sqrt{6}}{2}$  or  $3 \pm \sqrt{6}$ , 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.

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

*or*

[2] Appropriate work is shown to find  $\frac{6 \pm \sqrt{24}}{2}$ , 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]  $\frac{6 \pm 2\sqrt{6}}{2}$ , 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 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]  $x + y = 25$  and  $2.25x + 1.50y = 45$  are written, correct algebraic work is shown to find  $x = 10$  and  $y = 15$ , and correct work is shown to find 6.

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

*or*

[5] Appropriate work is shown, but a method other than algebraic is used to determine  $x = 10$  and  $y = 15$ , and correct work is shown to find 6.

*or*

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

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

*or*

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

[3] Appropriate work is shown to find either  $x = 10$  or  $y = 15$ , but no further correct work is shown.

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

*or*

[2] Appropriate work is shown to find 6, but no further correct work is shown.

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

*or*

[1]  $x = 10$  and  $y = 15$  are stated, but no algebraic work is shown.

*or*

[1] 6 is 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.

---

**Map to the Learning Standards  
Algebra I  
August 2025**

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

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

**The *Chart for Determining the Final Examination Score for the August 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

Tuesday, August 19, 2025 — 8:30 to 11:30 a.m., only

## MODEL RESPONSE SET

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Question 25

25 Solve the equation  $\frac{1}{6}(4x + 12) = 9$  algebraically.

$$\frac{4}{1} \cdot \frac{1}{6} = \frac{4}{6}$$

$$\frac{2}{3}x + 2 = 9$$
$$\underline{\quad -2 \quad} \quad \underline{\quad -2 \quad}$$

$$\frac{2}{3}x = 7$$
$$\frac{2/3}{2/3} \times \frac{7}{2/3}$$

$$x = \frac{21}{2}$$

$$\begin{array}{ccc} k & s & F \\ \frac{7}{1} & \div & \frac{2}{3} \end{array}$$

$$\frac{7}{1} \cdot \frac{3}{2} = \frac{21}{2}$$

Check

$$\frac{1}{6}(4(\frac{21}{2}) + 12) = 9$$

$$\frac{1}{6}(42 + 12) = 9$$

$$7 + 2 = 9$$

$$9 = 9 \checkmark$$

$$x = \frac{21}{2}$$

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

Question 25

25 Solve the equation  $\frac{1}{6}(4x + 12) = 9$  algebraically.

$$\frac{1}{6}(4x + 12) = 9$$

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

---

$$\quad -2 \quad -2$$

$$\frac{2}{3}x = 7$$

---

$$\frac{2}{3} \quad \frac{2}{3}$$

$$x = 10.5$$

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

---

**Question 25**

---

**25** Solve the equation  $\frac{1}{6}(4x + 12) = 9$  algebraically.

$$\begin{aligned}\frac{1}{6}(4x+12) &= 9 \\ .7x + 2 &= 9 \\ &\quad -2 \quad -2 \\ .7x &= 7 \\ \frac{\cdot 7x}{\cdot 7} &= \frac{7}{\cdot 7} \\ x &= 10\end{aligned}$$

**Score 1:** The student expressed  $\frac{4}{6}$  as .7.

Question 25

25 Solve the equation  $\frac{1}{6}(4x + 12) = 9$  algebraically.

$$\begin{array}{r} \frac{3x}{3} + \frac{2}{-2} = \frac{9}{-7} \\ \hline \frac{3}{2} \cdot \frac{2}{3} + = 2 \cdot \frac{3}{2} \end{array}$$

$$x = 3$$

**Score 1:** The student made a transcription error.

Question 25

25 Solve the equation  $\frac{1}{6}(4x + 12) = 9$  algebraically.

$$x = 1$$

$$\frac{1}{6}x + 2 = 9$$

$$\frac{1}{6}x = 7$$



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

Question 25

25 Solve the equation  $\frac{1}{6}(4x + 12) = 9$  algebraically.

$$\frac{1}{6}(4x + 12) = 9$$

$$\begin{array}{r} .\overline{6}x + 12.\overline{16} = 9 \\ -12.\overline{16} \quad -12.\overline{16} \\ \hline \end{array}$$

$$\frac{.\overline{6}x}{.\overline{6}} = \frac{-3.\overline{16}}{.\overline{6}}$$

$$x = -5.\overline{26}$$

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

**Question 26**

**26** Is the sum of  $3\sqrt{2}$  and 5 rational or irrational? Explain your answer.

The sum of  $3\sqrt{2}$  and 5 is irrational.  
It is irrational because  $3\sqrt{2}$  is  
irrational and adding irrationals  
with 5, a rational, doesn't make it  
rational, so, it is irrational.

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

**Question 26**

**26** Is the sum of  $3\sqrt{2}$  and 5 rational or irrational? Explain your answer.

irrational  
9.242640687....

**Score 1:** The student wrote the full display of the calculator, but the explanation is missing.

**Question 26**

**26** Is the sum of  $3\sqrt{2}$  and 5 rational or irrational? Explain your answer.

Irrational because the root cannot be added with the variable.

**Score 0:** The student did not write a correct explanation.

---

**Question 26**

---

26 Is the sum of  $3\sqrt{2}$  and 5 rational or irrational? Explain your answer.

$$3\sqrt{2} \times 5 = 21.21320344$$

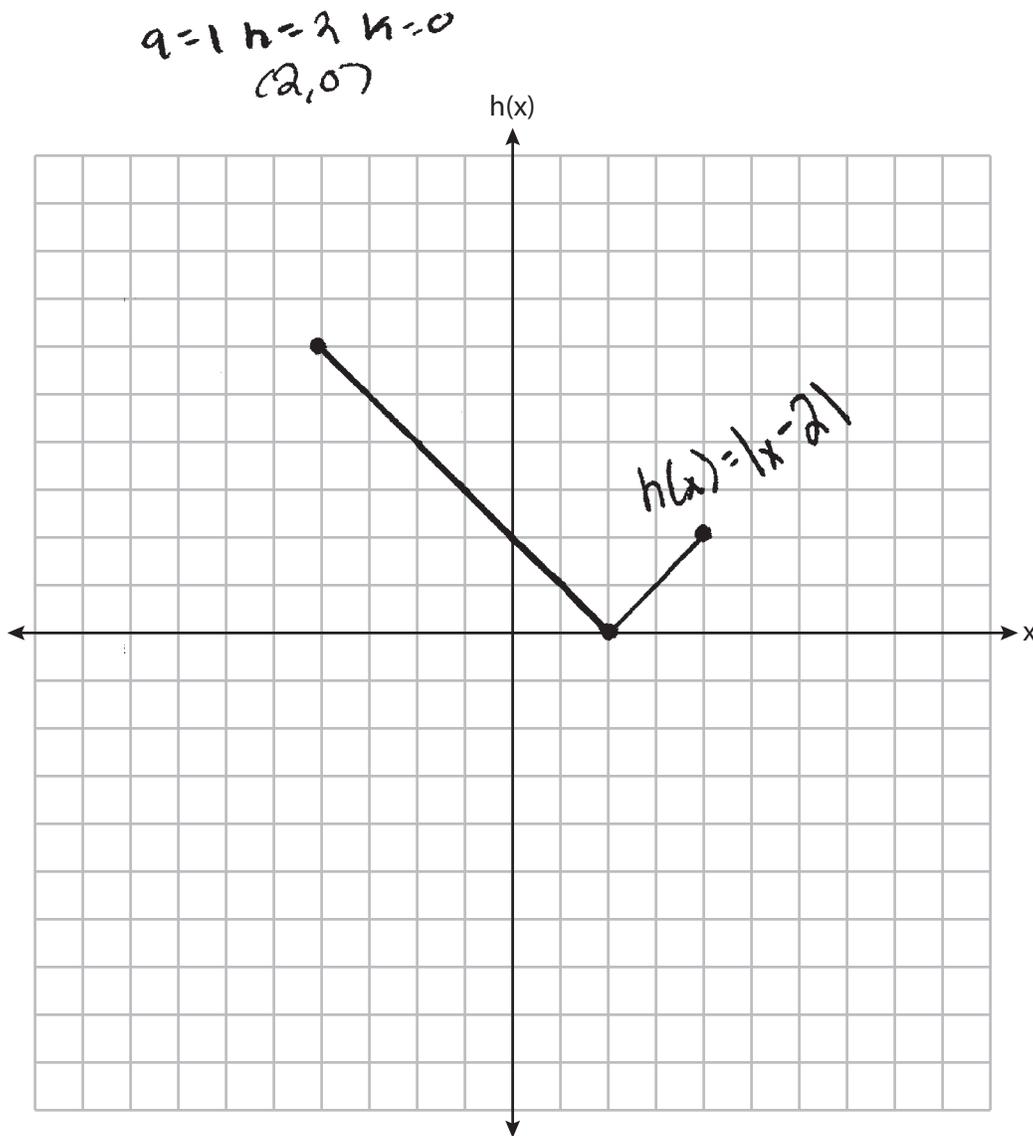
Irrational because the numbers after the decimal does not repeat

---

**Score 0:** The student multiplied and wrote an incomplete explanation.

Question 27

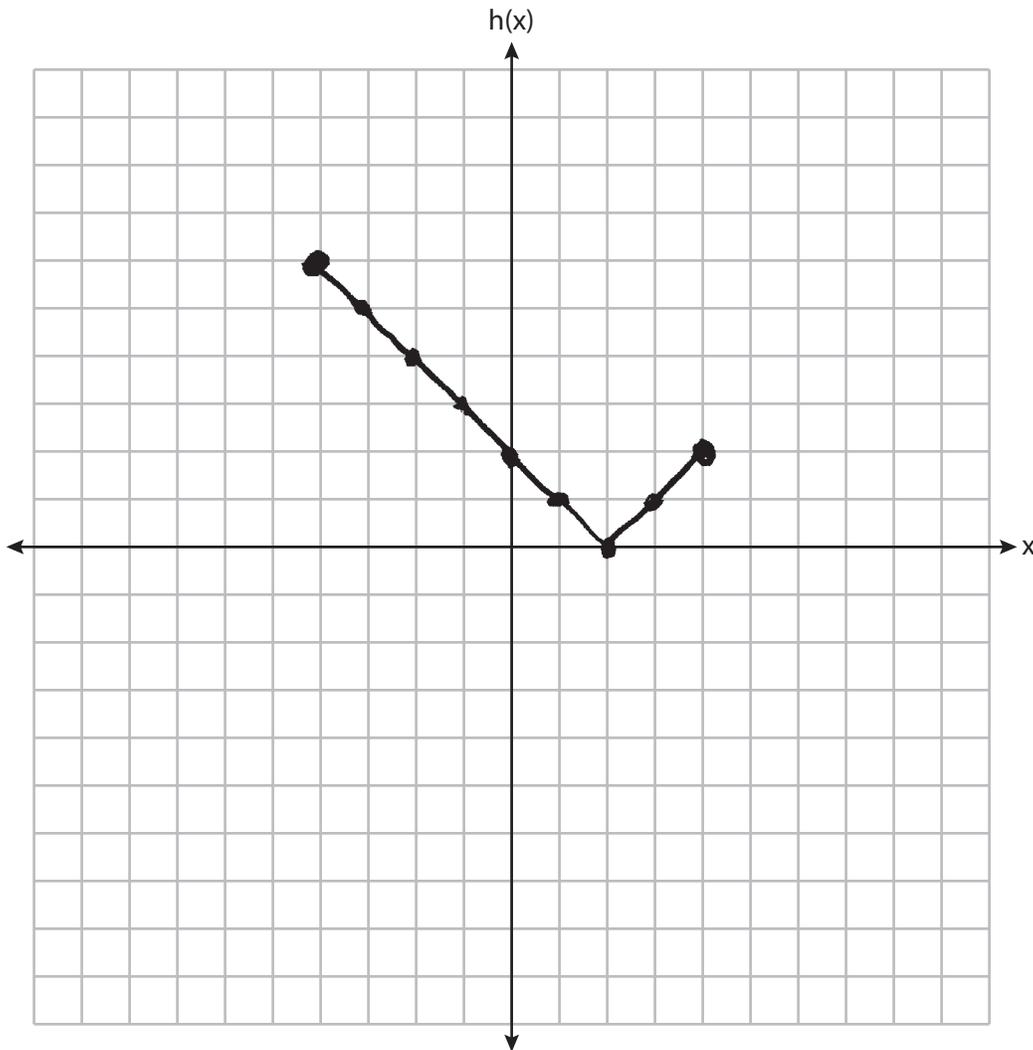
27 Graph  $h(x) = |x - 2|$  over the domain  $-4 \leq x \leq 4$ .



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

Question 27

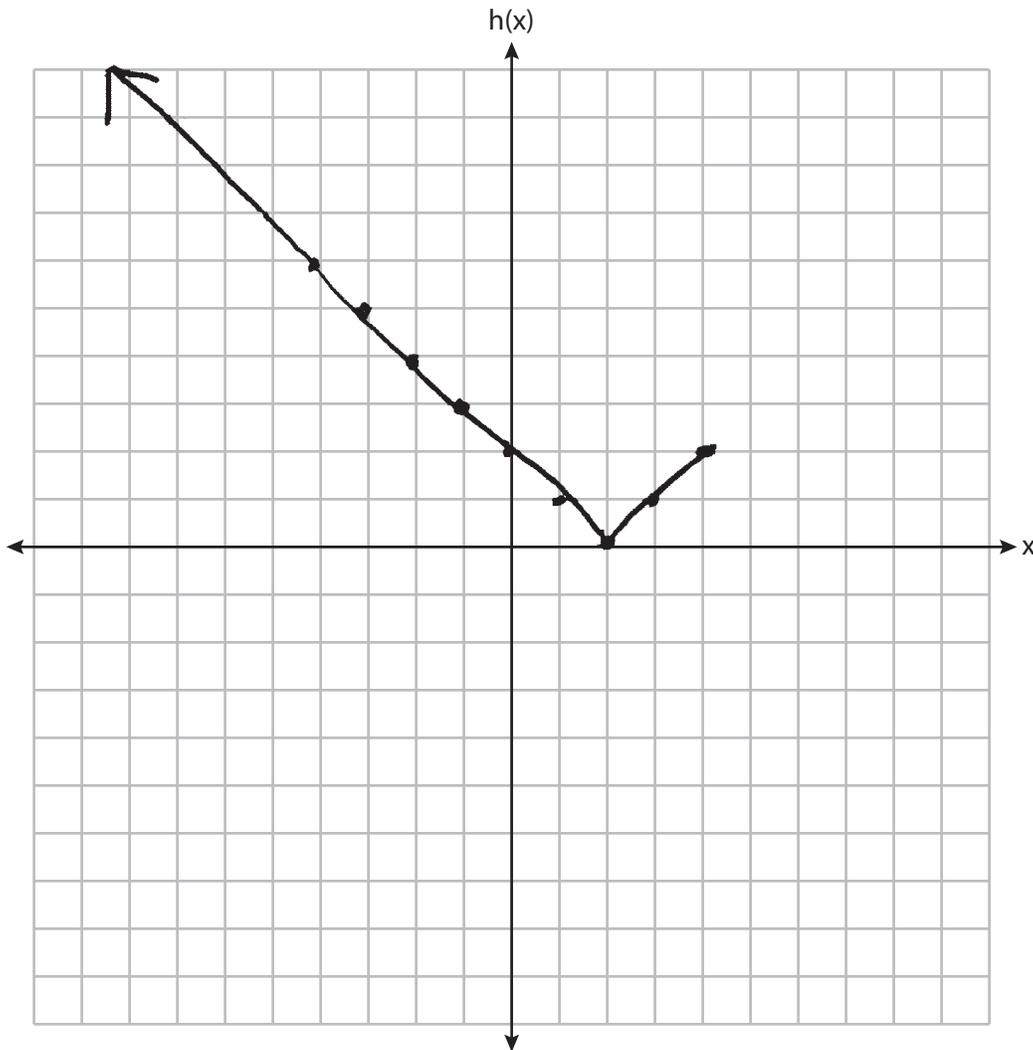
27 Graph  $h(x) = |x - 2|$  over the domain  $-4 \leq x \leq 4$ .



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

Question 27

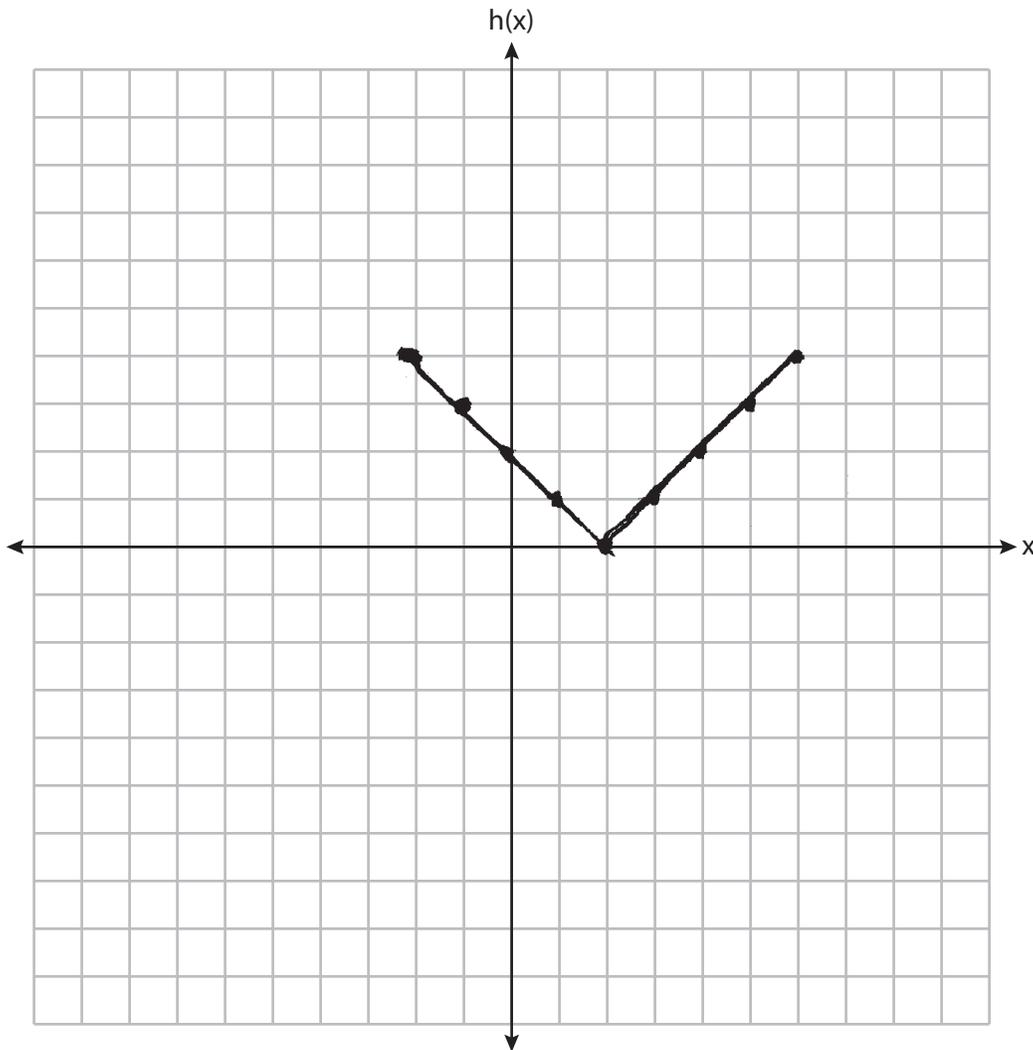
27 Graph  $h(x) = |x - 2|$  over the domain  $-4 \leq x \leq 4$ .



**Score 1:** The student did not graph the function over the correct domain.

Question 27

27 Graph  $h(x) = |x - 2|$  over the domain  $-4 \leq x \leq 4$ .

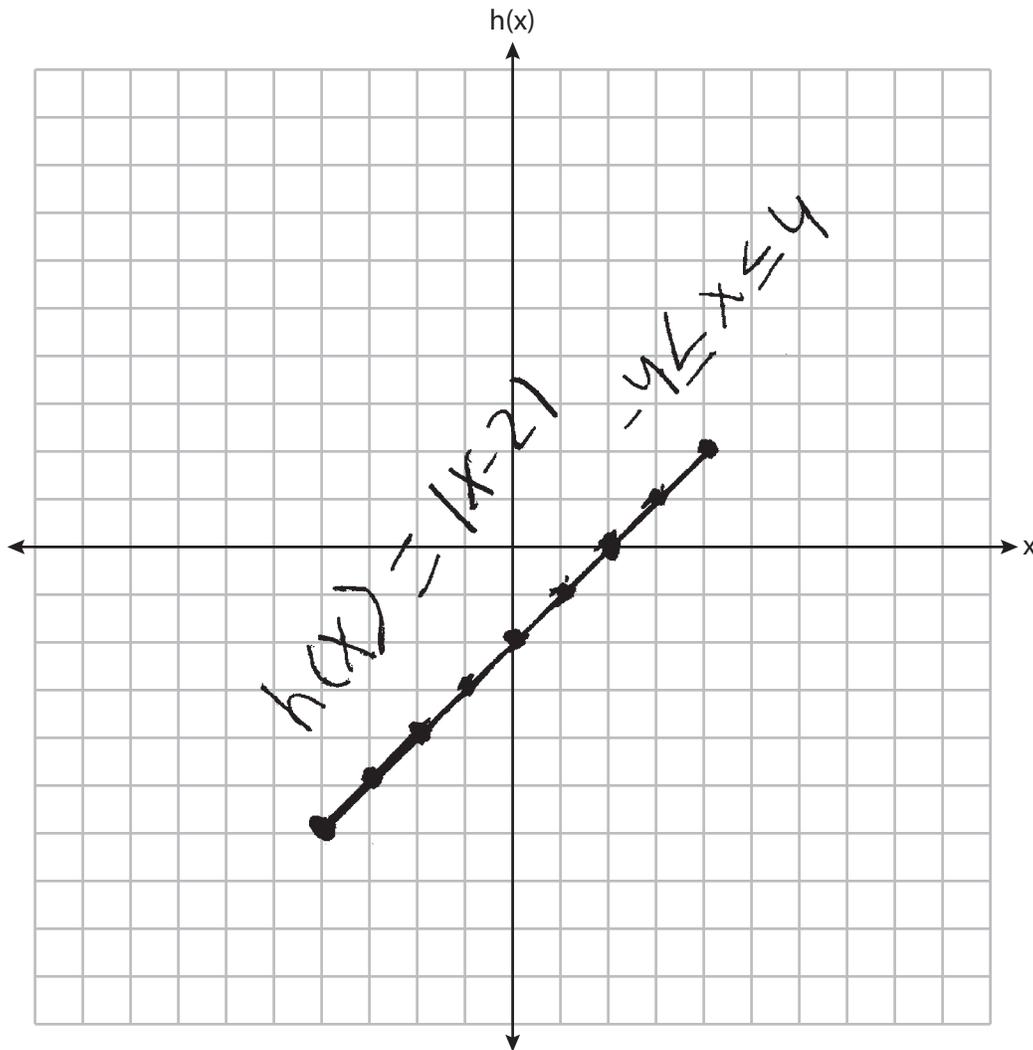


X	Y
-2	4
-1	3
0	2
1	1
2	0
3	1
4	2
5	3
6	4

**Score 1:** The student did not graph the function over the correct domain.

Question 27

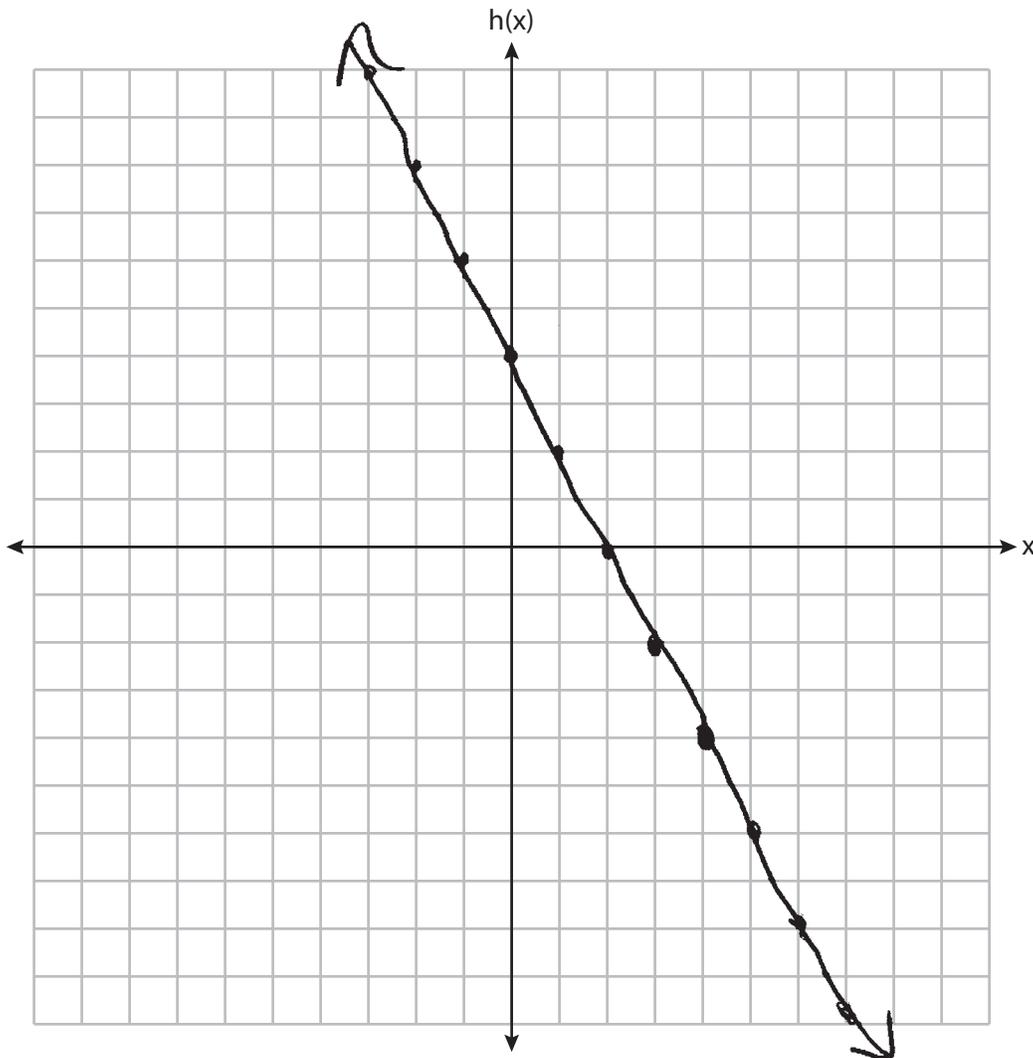
27 Graph  $h(x) = |x - 2|$  over the domain  $-4 \leq x \leq 4$ .



**Score 1:** The student graphed  $h(x) = x - 2$  over the correct domain.

Question 27

27 Graph  $h(x) = |x - 2|$  over the domain  $-4 \leq x \leq 4$ .



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

Question 28

28 A survey was given to 180 cell phone owners about the brand of phone they owned. The results showed that 59 adults owned Brand B and 32 teenagers owned Brand A. Of all the people surveyed, 40% owned Brand A. Complete the two-way frequency table below.

	Brand A	Brand B	Total
Adults	40	59	99
Teenagers	32	49	81
Total	72	108	180

$$180 \cdot \left(\frac{40}{100}\right) = 72$$

Brand A has  
72 total

$$40 + 59 = 99$$

$$32 + 49 = 81$$

$$99 + 81 = 180$$

$$180 - 72 = 108$$

Brand  
B

$$108 - 59 = 49$$

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

---

**Question 28**

---

**28** A survey was given to 180 cell phone owners about the brand of phone they owned. The results showed that 59 adults owned Brand B and 32 teenagers owned Brand A. Of all the people surveyed, 40% owned Brand A. Complete the two-way frequency table below.

	Brand A	Brand B	Total
Adults	40	59	99
Teenagers	32	49	81
Total	72	108	180

---

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

---

**Question 28**

---

28 A survey was given to 180 cell phone owners about the brand of phone they owned. The results showed that 59 adults owned Brand B and 32 teenagers owned Brand A. Of all the people surveyed, 40% owned Brand A. Complete the two-way frequency table below.

	Brand A	Brand B	Total
Adults	40	59	99
Teenagers	32	60	92
Total	72	109	811

$$100 - 40 = 60$$

**Score 1:** The student correctly found 72.

---

**Question 28**

---

28 A survey was given to 180 cell phone owners about the brand of phone they owned. The results showed that 59 adults owned Brand B and 32 teenagers owned Brand A. Of all the people surveyed, 40% owned Brand A. Complete the two-way frequency table below.

	Brand A	Brand B	Total
Adults	40	59	99
Teenagers	32	59	81
Total	72	118	180

**Score 1:** The student made one computational error when subtracting 72 from 180.

**Question 28**

**28** A survey was given to 180 cell phone owners about the brand of phone they owned. The results showed that 59 adults owned Brand B and 32 teenagers owned Brand A. Of all the people surveyed, 40% owned Brand A. Complete the two-way frequency table below.

	Brand A	Brand B	Total
Adults		59	
Teenagers	32		
Total	40%		

180

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

---

**Question 29**

---

29 Determine the 8th term of a geometric sequence whose first term is 5 and whose common ratio is 3.

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

$$a_8 = 5(3)^{8-1}$$

$$a_8 = 10,935$$

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

Question 29

29 Determine the 8th term of a geometric sequence whose first term is 5 and whose common ratio is 3.

5, 15, 45, 135, 405, 1215, 3645, 10935, ...

$$5 \times 3 = 15$$

$$15 \times 3 = 45$$

$$45 \times 3 = 135$$

$$135 \times 3 = 405$$

$$405 \times 3 = 1215$$

$$1215 \times 3 = 3645$$

$$3645 \times 3 = 10935$$

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

---

**Question 29**

---

29 Determine the 8th term of a geometric sequence whose first term is 5 and whose common ratio is 3.

$$\begin{aligned} & \cdot 3 \\ a_1 &= 5 \\ a_2 &= 15 \\ a_3 &= 45 \\ a_4 &= 135 \\ a_5 &= 405 \\ a_6 &= 1215 \\ a_7 &= 3645 \\ a_8 &= 10935 \end{aligned}$$

8<sup>th</sup> term is 10935

---

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

Question 29

29 Determine the 8th term of a geometric sequence whose first term is 5 and whose common ratio is 3.

$$A_1: 5$$

$$A_2: 5 + 3 = 8$$

$$A_3: 8 + 3 = 11$$

$$A_4: 11 + 3 = 14$$

$$A_5: 14 + 3 = 17$$

$$A_6: 17 + 3 = 20$$

$$A_7: 20 + 3 = 23$$

$$A_8: 23 + 3 = 26$$

The 8th term is 26

**Score 1:** The student used an arithmetic sequence.

Question 29

29 Determine the 8th term of a geometric sequence whose first term is 5 and whose common ratio is 3.

$$a_1 = 5$$

$$a_2 = 5(5) = 25$$

$$a_3 = 25(5) = 125$$

$$a_4 = 125(5) = 625$$

$$a_5 = 625(5) = 3125$$

$$a_6 = 3125(5) = 15625$$

$$a_7 = 15625(5) = 78125$$

$$a_8 = 78125(5) = 390625$$

$$a_8 = 390,625$$

**Score 1:** The student used a common ratio of 5.

---

**Question 29**

---

**29** Determine the 8th term of a geometric sequence whose first term is 5 and whose common ratio is 3.

$$y = 5x + 3$$

$$y = 5(8) + 3 = 43$$

---

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

Question 30

30 Using the method of completing the square, express  $x^2 + 14x - 28 = 0$  in the form  $(x - p)^2 = q$ .

$$x^2 + 14x - 28 = 0$$

$$+28 \quad +28$$

$$x^2 + 14x = 28$$

$$\left(\frac{14}{2}\right)^2 = (7)^2 = 49$$

$$x^2 + 14x + 49 = 28 + 49$$

$$x^2 + 14x + 49 = 77$$

$$(x + 7)(x + 7) = 77$$

$$(x + 7)^2 = 77$$

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

Question 30

30 Using the method of completing the square, express  $x^2 + 14x - 28 = 0$  in the form  $(x - p)^2 = q$ .

$$x^2 + 14x - 28 = 0$$

$$(x+7)^2 - 49 - 28 = 0$$

$$(x+7)^2 - 77 = 0$$

$$(x+7)^2 = 77$$

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

Question 30

30 Using the method of completing the square, express  $x^2 + 14x - 28 = 0$  in the form  $(x - p)^2 = q$ .

$$x^2 + 14x - 28 = 0$$

7                      7  
                                 +77

$$x^2 + 14x + 49 = 77$$

$$(x+7)^2 = 77$$

$$\begin{array}{r} 49 \\ +28 \\ \hline 77 \end{array}$$

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

Question 30

30 Using the method of completing the square, express  $x^2 + 14x - 28 = 0$  in the form  $(x - p)^2 = q$ .

$$\begin{array}{r} x^2 + 14x - 28 = 0 \\ \quad \quad \quad + 28 \quad + 28 \\ \hline \end{array}$$
$$\left(\frac{14}{2}\right)^2 = (7)^2 = 49$$
$$x^2 + 14x + 49 = 28 + 49$$
$$(x + 7)(x + 7) = 77$$
$$\begin{array}{r} (x + 7)^2 = 77 \\ \quad \quad \quad - 77 \quad - 77 \\ \hline \end{array}$$
$$(x + 7)^2 - 77 = 0$$

**Score 1:** The student did not express the equation in the form  $(x - p)^2 = q$ .

Question 30

30 Using the method of completing the square, express  $x^2 + 14x - 28 = 0$  in the form  $(x - p)^2 = q$ .

$$\begin{aligned}x^2 + 14x - 28 &= 0 \\ &+ 28 + 28 \\x^2 + 14x + 49 &= 28 + 49 \\(x + 7)^2 &= \pm \sqrt{77}\end{aligned}$$
$$\frac{14}{2} = 7$$
$$(7)^2 = 49$$

**Score 1:** The student wrote an incorrect value for  $q$ .

Question 30

30 Using the method of completing the square, express  $x^2 + 14x - 28 = 0$  in the form  $(x - p)^2 = q$ .

$$x^2 + 14x - 28 = 0 \quad \left(\frac{14}{2}\right)^2 \quad (7)^2 = 49$$

+28    -28

$$x^2 + 14x + 49 = 28 + 49$$

$$(x - 7)^2 = 77$$

**Score 1:** The student made a factoring error.

Question 30

30 Using the method of completing the square, express  $x^2 + 14x - 28 = 0$  in the form  $(x - p)^2 = q$ .

$$\begin{array}{r} x^2 + 14x - 28 = 0 \\ \quad \quad + 28 \quad + 28 \\ \hline x^2 + 14x = 28 \end{array} \quad \frac{14}{2} = (\sqrt{7})^2$$
$$\begin{array}{r} x^2 + 49 = 28 \\ \quad \quad - 49 \end{array}$$
$$(x+7)(x+7) = 21$$
$$\sqrt{(x+7)^2} = \sqrt{21}$$

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

Question 30

30 Using the method of completing the square, express  $x^2 + 14x - 28 = 0$  in the form  $(x - p)^2 = q$ .

$$x + 14x = 28 = 0$$
$$+28 +28$$

$$x + 14 = 28$$

$$x + 14 + 49 = 28 + 49$$

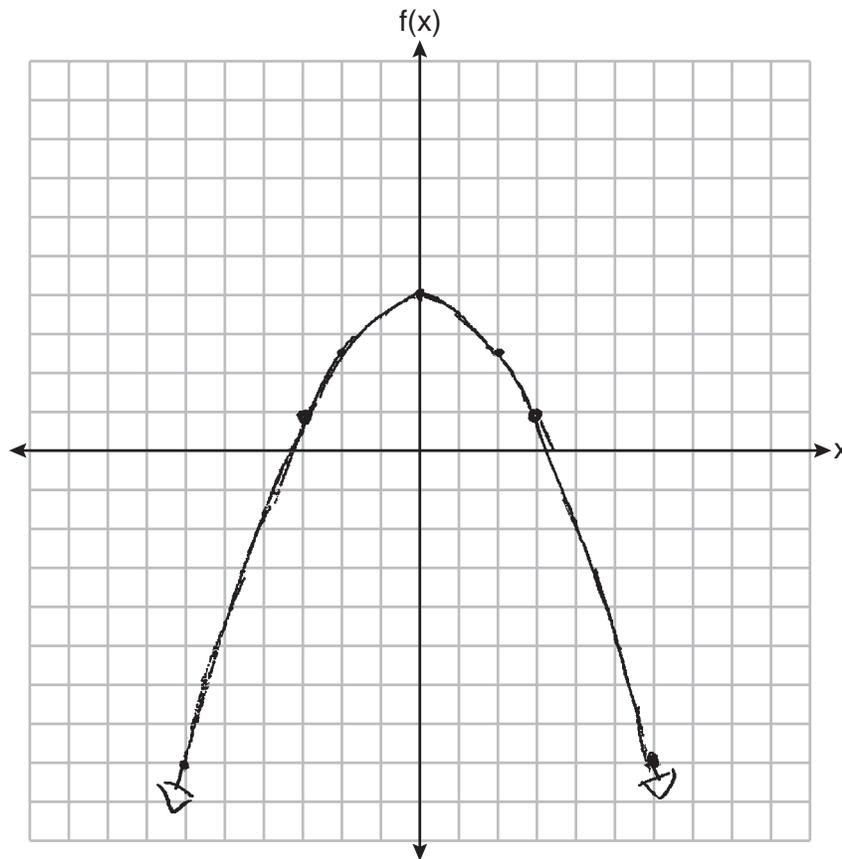
$$x + 63 = 77$$

$$(x - 7)^2 = 77$$

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

Question 31

31 Graph  $f(x) = -\frac{1}{3}x^2 + 4$  on the set of axes below.



State the vertex of this function.

$(0, 4)$

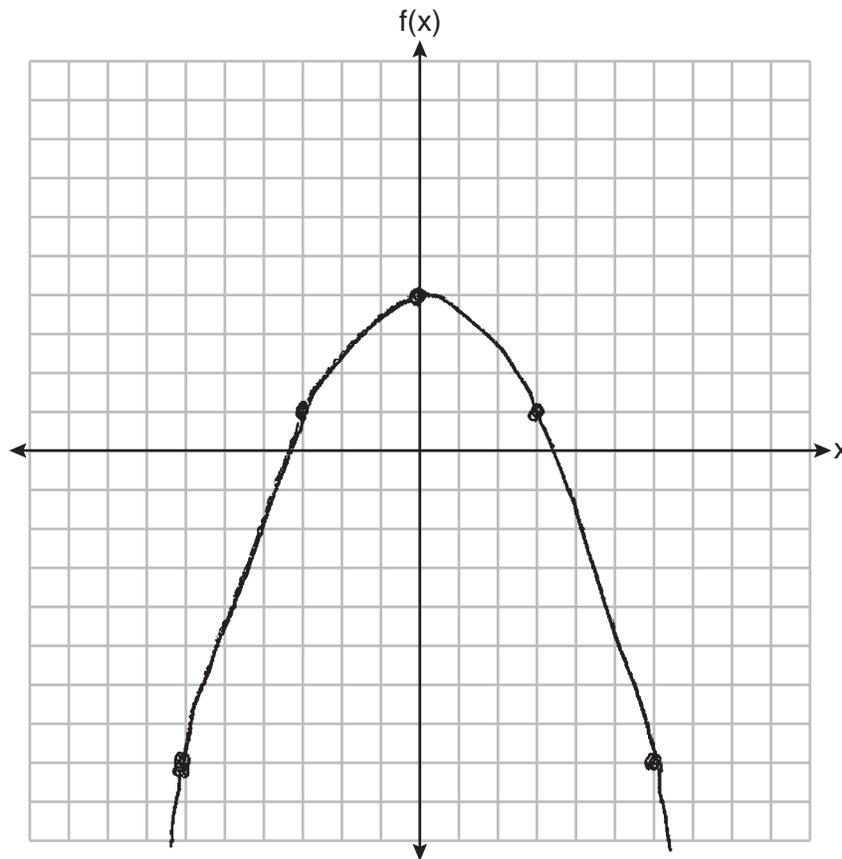
State the equation of the axis of symmetry of this function.

$x = 0$

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

**Question 31**

31 Graph  $f(x) = -\frac{1}{3}x^2 + 4$  on the set of axes below.



State the vertex of this function.

$$(0, 4)$$

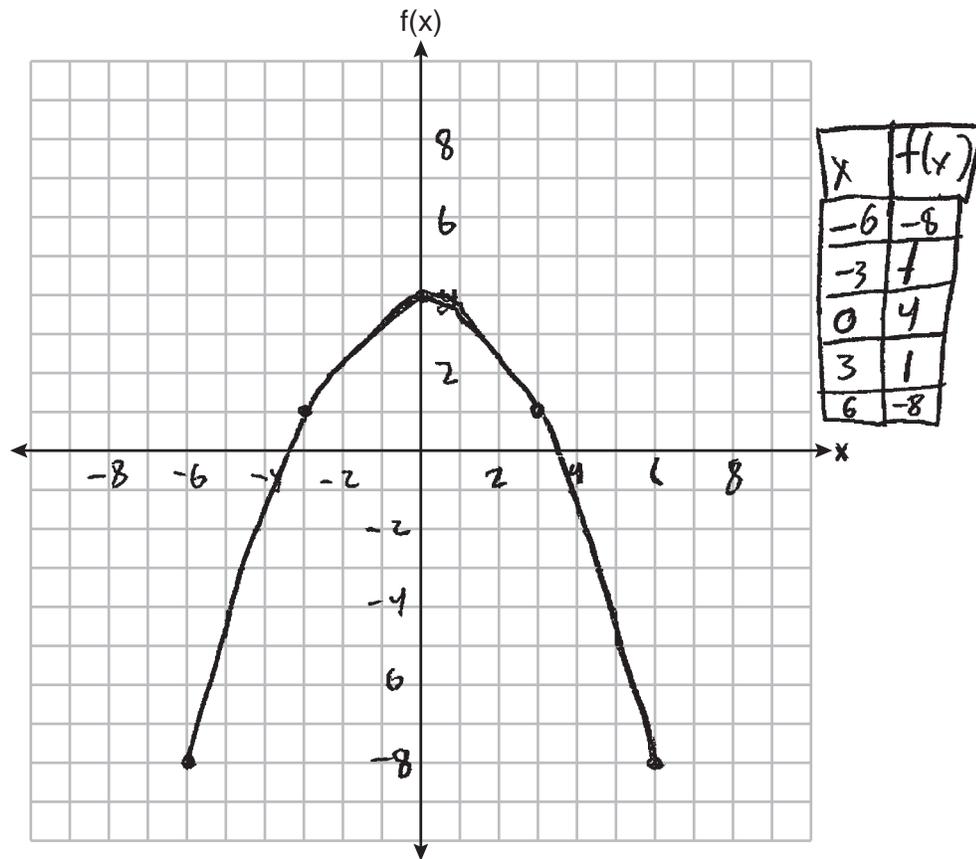
State the equation of the axis of symmetry of this function.

$$x = 0$$

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

Question 31

31 Graph  $f(x) = -\frac{1}{3}x^2 + 4$  on the set of axes below.



State the vertex of this function.

$(0, 4)$

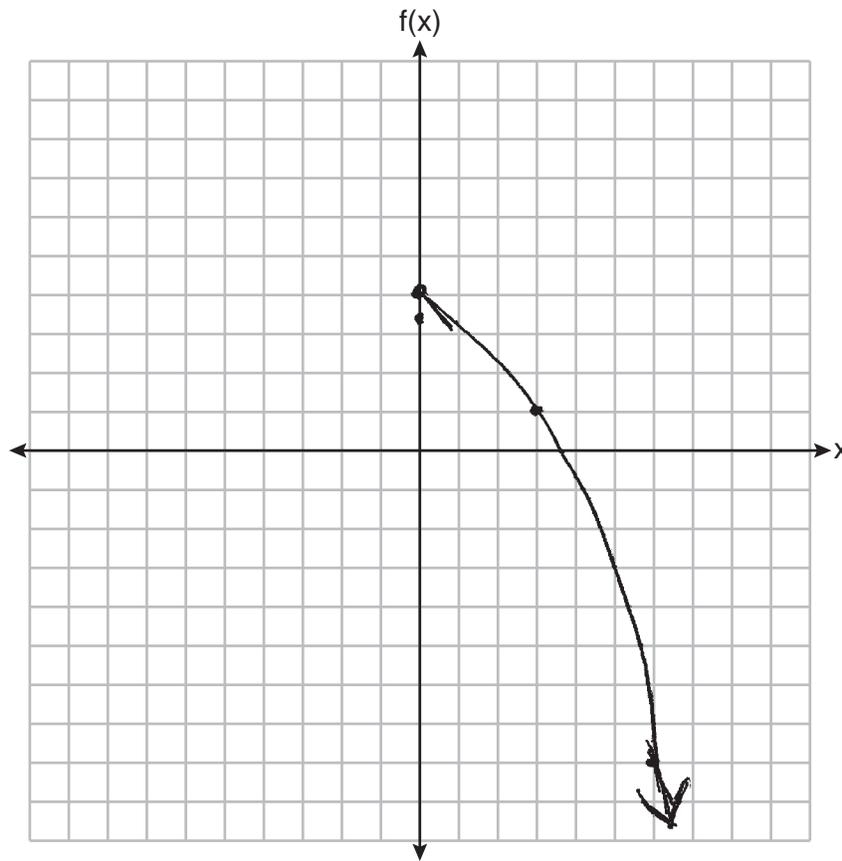
State the equation of the axis of symmetry of this function.

$x = 0$

**Score 3:** The student made one graphing error.

**Question 31**

31 Graph  $f(x) = -\frac{1}{3}x^2 + 4$  on the set of axes below.



State the vertex of this function.

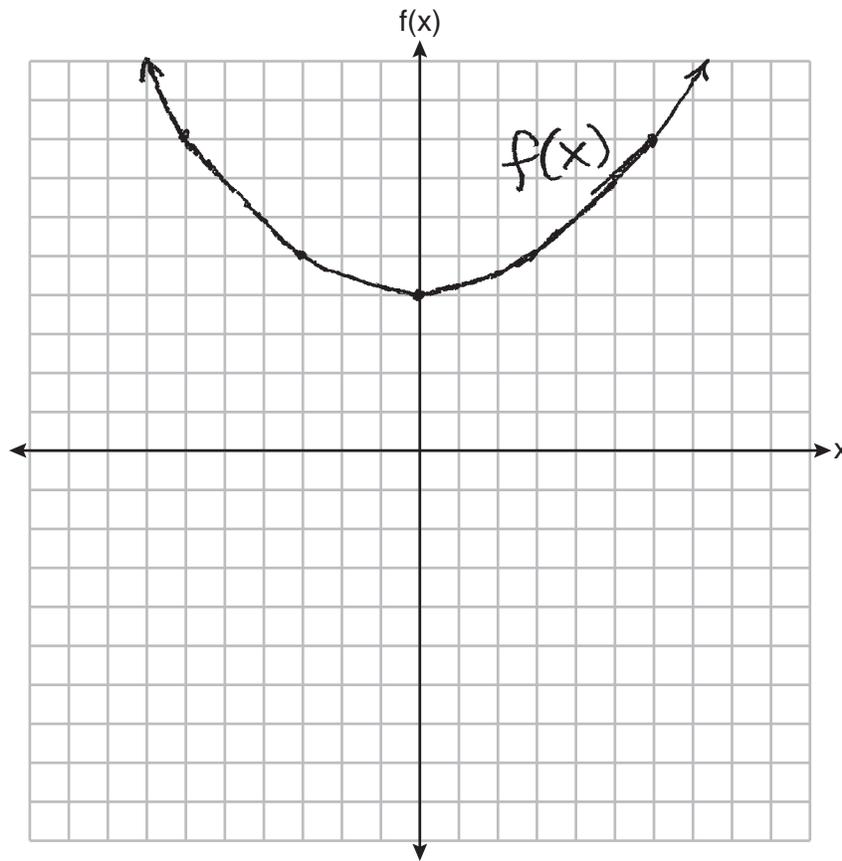
$(0, 4)$

State the equation of the axis of symmetry of this function.

**Score 2:** The student graphed over the domain  $x \geq 0$  and did not state the axis of symmetry.

Question 31

31 Graph  $f(x) = -\frac{1}{3}x^2 + 4$  on the set of axes below.



State the vertex of this function.

$$(0, 4)$$

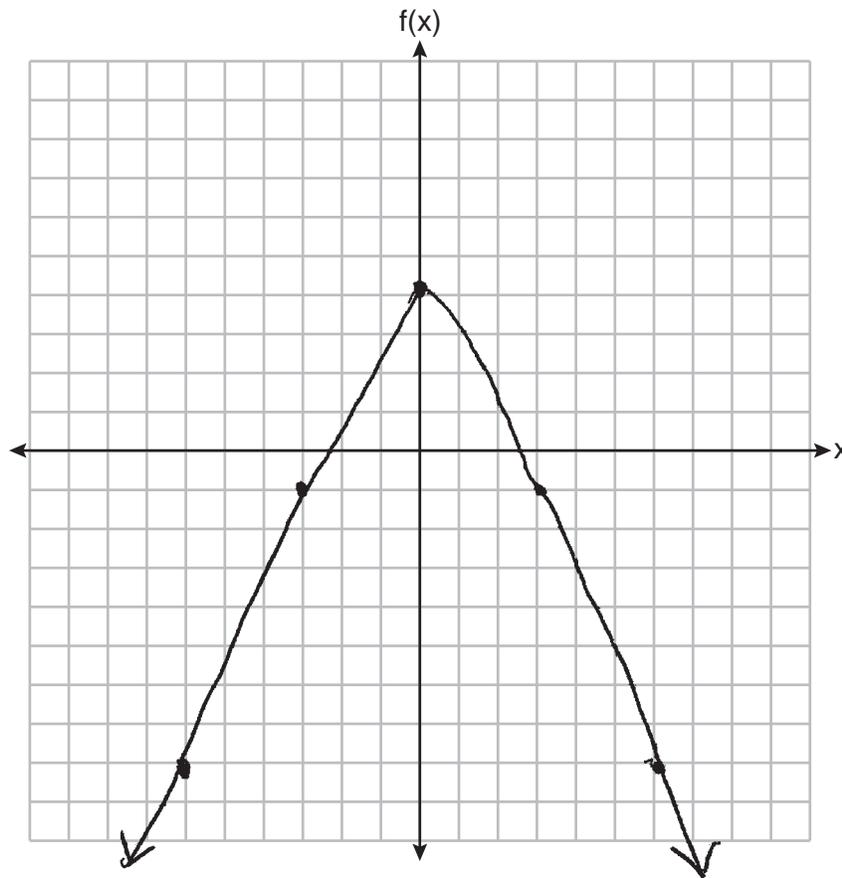
State the equation of the axis of symmetry of this function.

$$x = 0$$

**Score 2:** The student stated the vertex and axis of symmetry correctly.

**Question 31**

31 Graph  $f(x) = -\frac{1}{3}x^2 + 4$  on the set of axes below.



State the vertex of this function.

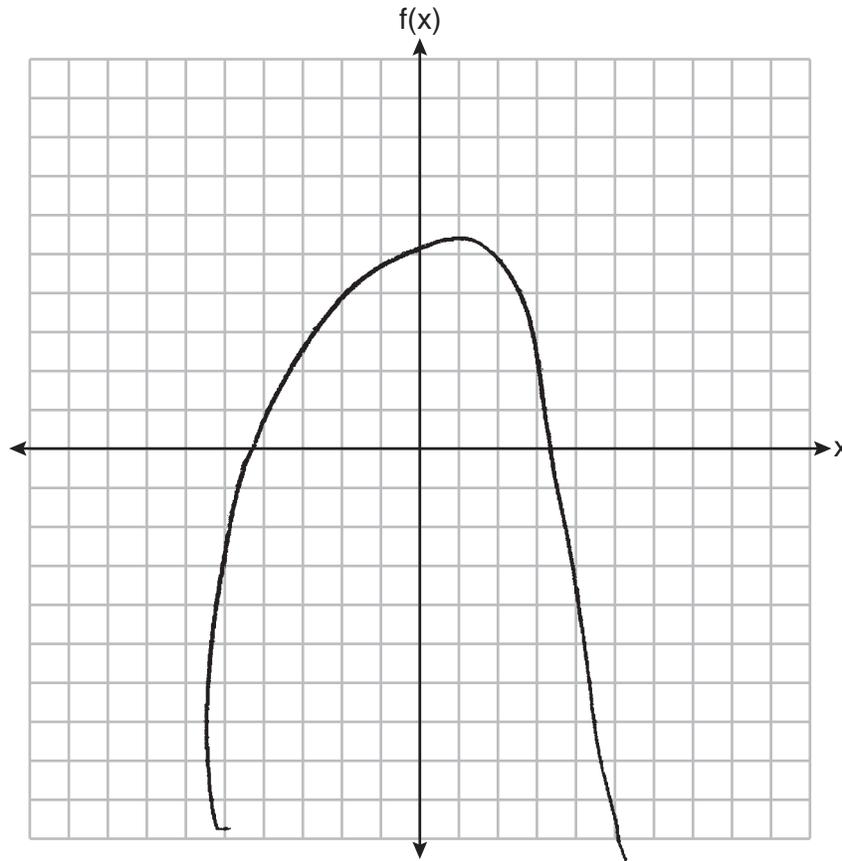
$(0, 4)$

State the equation of the axis of symmetry of this function.

**Score 1:** The student stated the vertex correctly.

Question 31

31 Graph  $f(x) = -\frac{1}{3}x^2 + 4$  on the set of axes below.



State the vertex of this function.

5

State the equation of the axis of symmetry of this function.

$y = mx + b$

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

**Question 32**

32 Vince wants to rent a canoe while he is on vacation. The canoe rental company charges \$18 for the first hour and \$7.50 for each additional hour,  $x$ . If Vince has \$78 to spend on renting a canoe, write an inequality in terms of  $x$  that models this situation.

$$18 + 7.50x \leq 78$$

Algebraically determine the maximum number of hours that Vince could rent a canoe.

$$\begin{array}{r} 18 + 7.50x \leq 78 \\ -18 \quad \underline{-18} \end{array}$$

$$\begin{array}{r} \cancel{7.50x} \leq \cancel{60} \\ \hline \cancel{7.50} \quad \hline 7.5 \end{array}$$

$$x \leq 8$$

Vince could rent a canoe  
for 9 hours

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

Question 32

32 Vince wants to rent a canoe while he is on vacation. The canoe rental company charges \$18 for the first hour and \$7.50 for each additional hour,  $x$ . If Vince has \$78 to spend on renting a canoe, write an inequality in terms of  $x$  that models this situation.

$x = \#$  of additional hours

$$7.5x + 18 \leq 78$$

max of \$78  
↓  
cost must  
be less  
or equal  
to  
 $\leq$

Algebraically determine the maximum number of hours that Vince could rent a canoe.

$$7.5x + 18 \leq 78$$

---

$$-18 \quad -18$$

$$7.5x \leq 60$$

---

$$7.5 \quad 7.5$$

$$x \leq 8$$

$$x = 8$$

Vince could  
rent a canoe  
for a maximum  
of 9 hours.

$x = \#$  of additional  
hours

\$18 - 1st hour - 1 hour

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

---

**Question 32**

---

**32** Vince wants to rent a canoe while he is on vacation. The canoe rental company charges \$18 for the first hour and \$7.50 for each additional hour,  $x$ . If Vince has \$78 to spend on renting a canoe, write an inequality in terms of  $x$  that models this situation.

$$7.50x + 18 \leq 78$$

Algebraically determine the maximum number of hours that Vince could rent a canoe.

9 hours

$$7.50(8) \leq 60$$

---

**Score 3:** The student did not solve the inequality algebraically.

Question 32

32 Vince wants to rent a canoe while he is on vacation. The canoe rental company charges \$18 for the first hour and \$7.50 for each additional hour,  $x$ . If Vince has \$78 to spend on renting a canoe, write an inequality in terms of  $x$  that models this situation.

$$18 + 7.50x \leq 78$$

Algebraically determine the maximum number of hours that Vince could rent a canoe.

$$\begin{array}{r} 18 + 7.50x \leq 78 \\ -18 \qquad \qquad -18 \\ \hline 7.50x \leq 60 \\ \hline 7.50 \quad 7.50 \\ \hline x \leq 8 \end{array}$$

**Score 3:** The student did not state 9 hours.

**Question 32**

32 Vince wants to rent a canoe while he is on vacation. The canoe rental company charges \$18 for the first hour and \$7.50 for each additional hour,  $x$ . If Vince has \$78 to spend on renting a canoe, write an inequality in terms of  $x$  that models this situation.

$$7.5(x-1) + 18 \leq 78$$

Algebraically determine the maximum number of hours that Vince could rent a canoe.

$$\begin{aligned} 7.5(x-1) + 18 &= 78 \\ 7.5x - 7.5 + 18 &= 78 \\ 7.5x + 10.5 &= 78 \\ 7.5x &= 67.5 \\ x &= 9 \text{ hours} \end{aligned}$$

**Score 3:** The student wrote an incorrect inequality by writing  $x - 1$ .

Question 32

32 Vince wants to rent a canoe while he is on vacation. The canoe rental company charges \$18 for the first hour and \$7.50 for each additional hour,  $x$ . If Vince has \$78 to spend on renting a canoe, write an inequality in terms of  $x$  that models this situation.

$$78 = 18 + 7.50x$$

Algebraically determine the maximum number of hours that Vince could rent a canoe.

9 hours

$$78 = 18 + 7.50(7)$$

$$78 \neq 70.5$$

$$78 = 18 + 7.50(8)$$

$$78 \neq 78$$

$$78 = 18 + 7.50(6)$$

$$78 \neq 63$$

**Score 2:** The student wrote an appropriate equation, but did not solve it algebraically.

Question 32

32 Vince wants to rent a canoe while he is on vacation. The canoe rental company charges \$18 for the first hour and \$7.50 for each additional hour,  $x$ . If Vince has \$78 to spend on renting a canoe, write an inequality in terms of  $x$  that models this situation.

$$18 + 7.50x \leq 78$$

Algebraically determine the maximum number of hours that Vince could rent a canoe.

$$\begin{array}{r} 18 + 7.50x \leq 78 \\ -18 \qquad \qquad -18 \\ \hline 7.50x \leq 60 \\ \hline 7.50 \quad 7.50 \\ \hline x \geq 8 \end{array}$$

**Score 2:** The student wrote an incorrect inequality sign in the solution and did not find the maximum number of hours.

Question 32

32 Vince wants to rent a canoe while he is on vacation. The canoe rental company charges \$18 for the first hour and \$7.50 for each additional hour,  $x$ . If Vince has \$78 to spend on renting a canoe, write an inequality in terms of  $x$  that models this situation. 78 is max

$$18 + 7.50x = 78$$

Algebraically determine the maximum number of hours that Vince could rent a canoe.

$$7.50 \times 8 = 60 + 18 = 78$$

Vince can rent the canoe for 8 hours.

**Score 1:** The student wrote an appropriate equation.

---

**Question 32**

---

**32** Vince wants to rent a canoe while he is on vacation. The canoe rental company charges \$18 for the first hour and \$7.50 for each additional hour,  $x$ . If Vince has \$78 to spend on renting a canoe, write an inequality in terms of  $x$  that models this situation.

$$18 + 7.50x$$

Algebraically determine the maximum number of hours that Vince could rent a canoe.

10 hours

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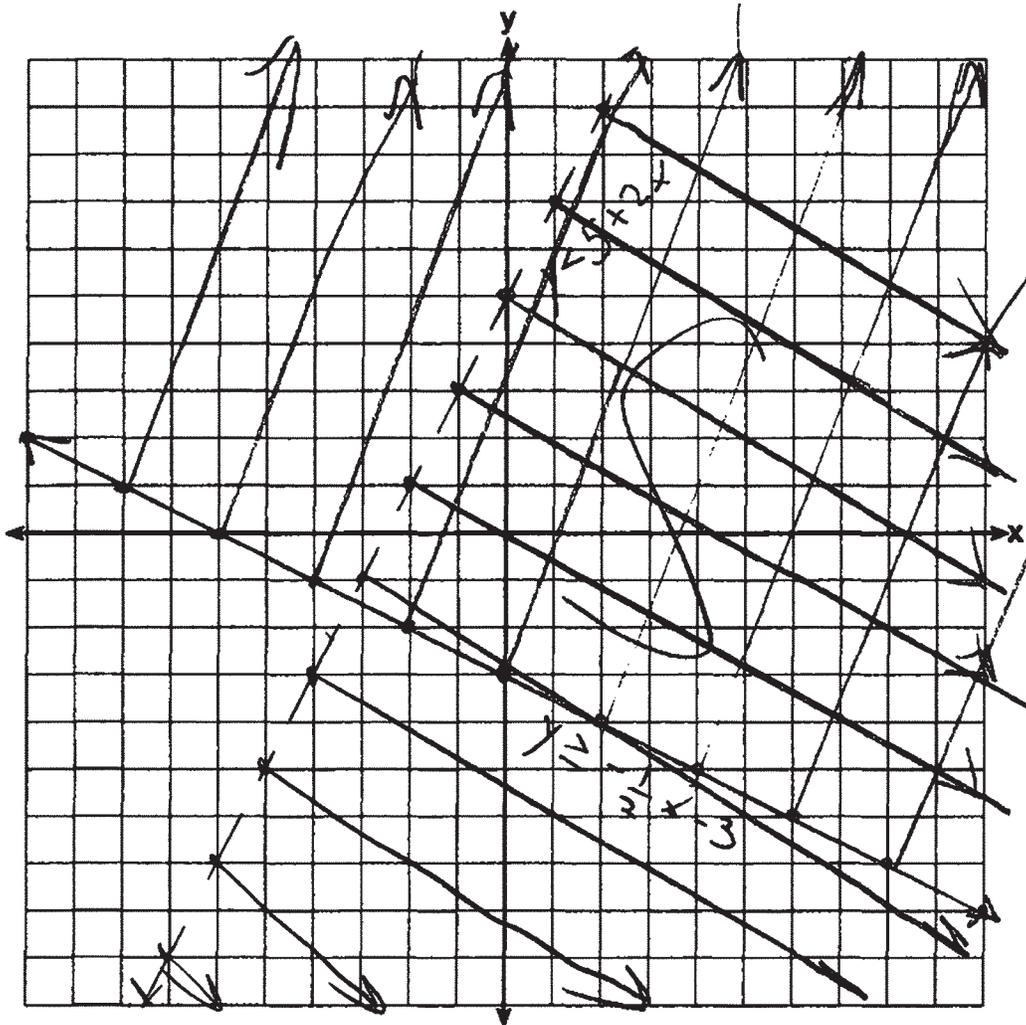
**Score 0:** The student did not show enough correct work to receive any credit.

Question 33

33 Graph the following system of inequalities on the set of axes below.

$$y \geq -\frac{1}{2}x - 3$$

$$y - 2x < 5 + 2$$



State the coordinates of a point that is in the solution to this system. Justify your answer.

$(0,0)$  is in the "S" region which means both graphs include it.

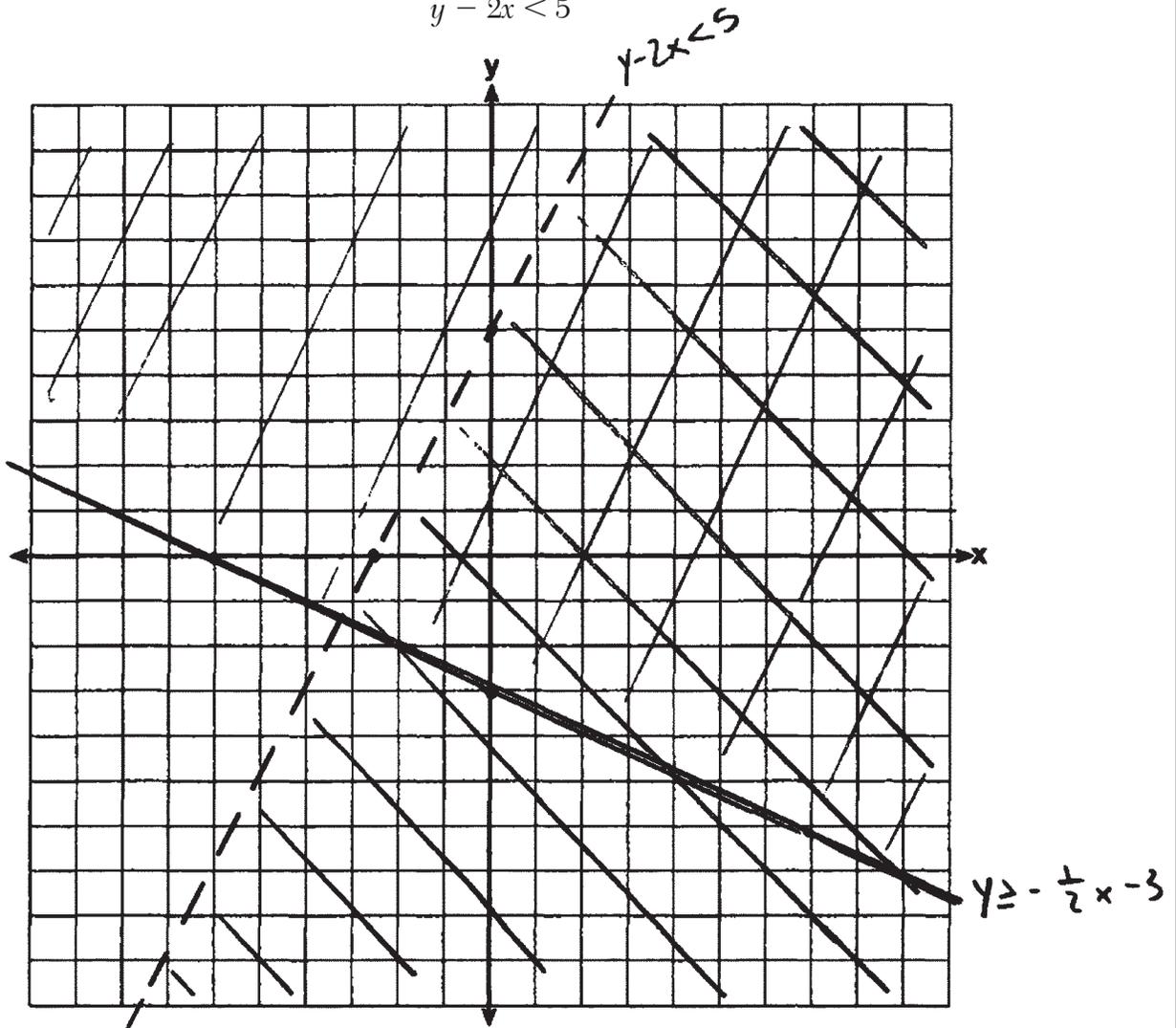
**Score 4:** The student gave a complete and correct response.

Question 33

33 Graph the following system of inequalities on the set of axes below.

$$y \geq -\frac{1}{2}x - 3$$

$$y - 2x < 5$$



State the coordinates of a point that is in the solution to this system. Justify your answer.

$(6, 6)$  because it's in the area that's (double shaded) shaded with both inequalities.

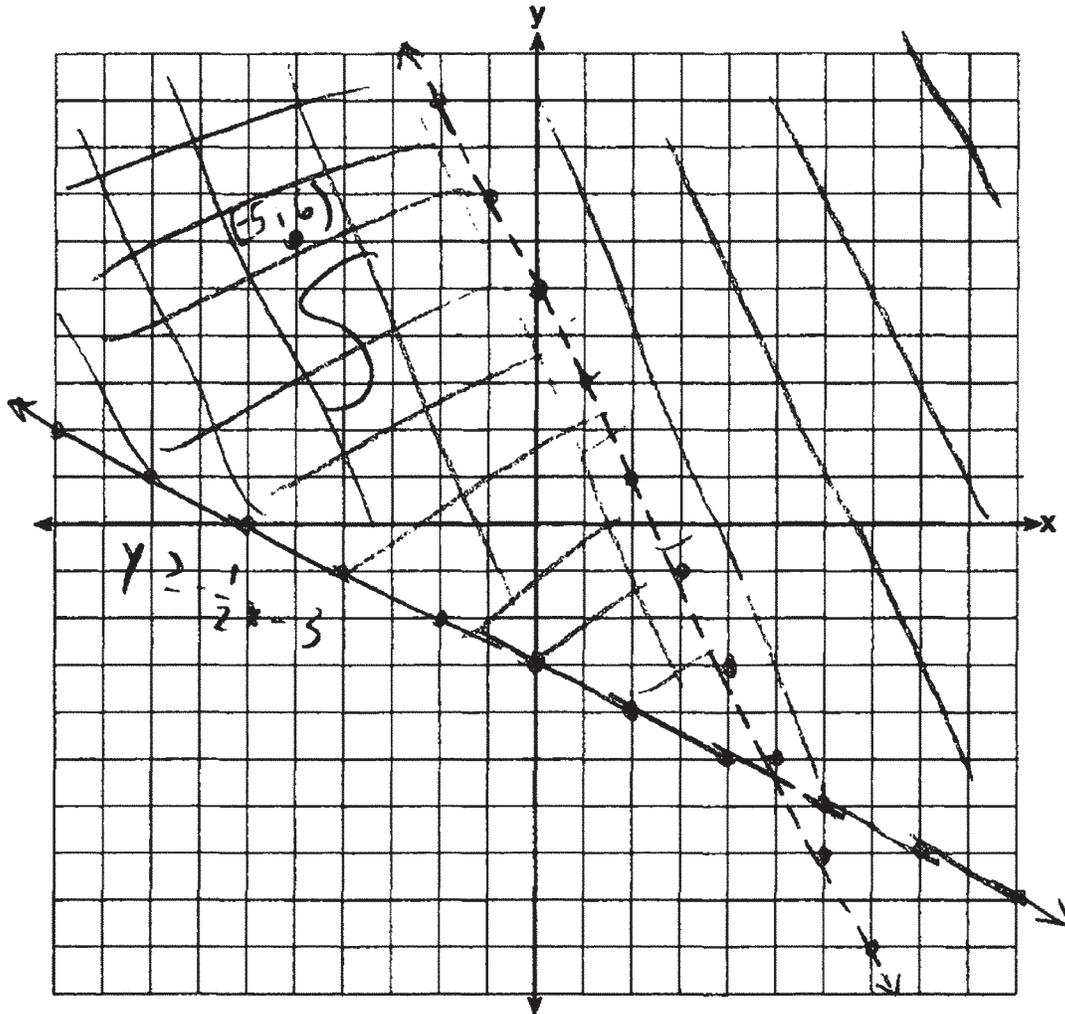
**Score 4:** The student gave a complete and correct response.

Question 33

33 Graph the following system of inequalities on the set of axes below.

$$y \geq -\frac{1}{2}x - 3$$

$$y - 2x < 5$$



State the coordinates of a point that is in the solution to this system. Justify your answer.

$(-5, 6)$ , the point is in the solution set of the system of inequalities.

**Score 3:** The student graphed one inequality correctly and an appropriate point is stated with its justification.

Question 33

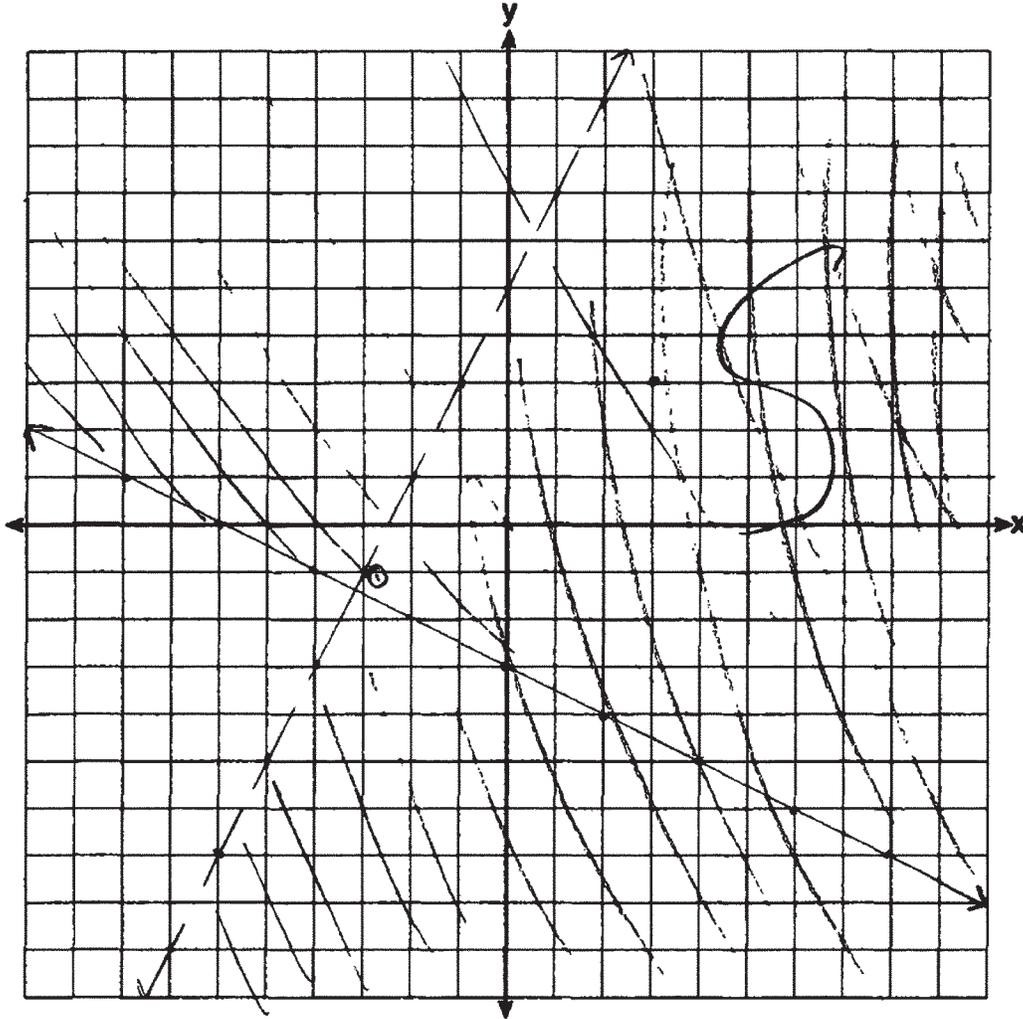
33 Graph the following system of inequalities on the set of axes below.

$$\textcircled{1} y \geq -\frac{1}{2}x - 3$$

$$y - 2x < 5$$

$$y - 2x < 5$$

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



State the coordinates of a point that is in the solution to this system. Justify your answer.

one solution is (3,3). This is because this is in the double shaded part of my graph meaning that all of those are possible solutions to use.

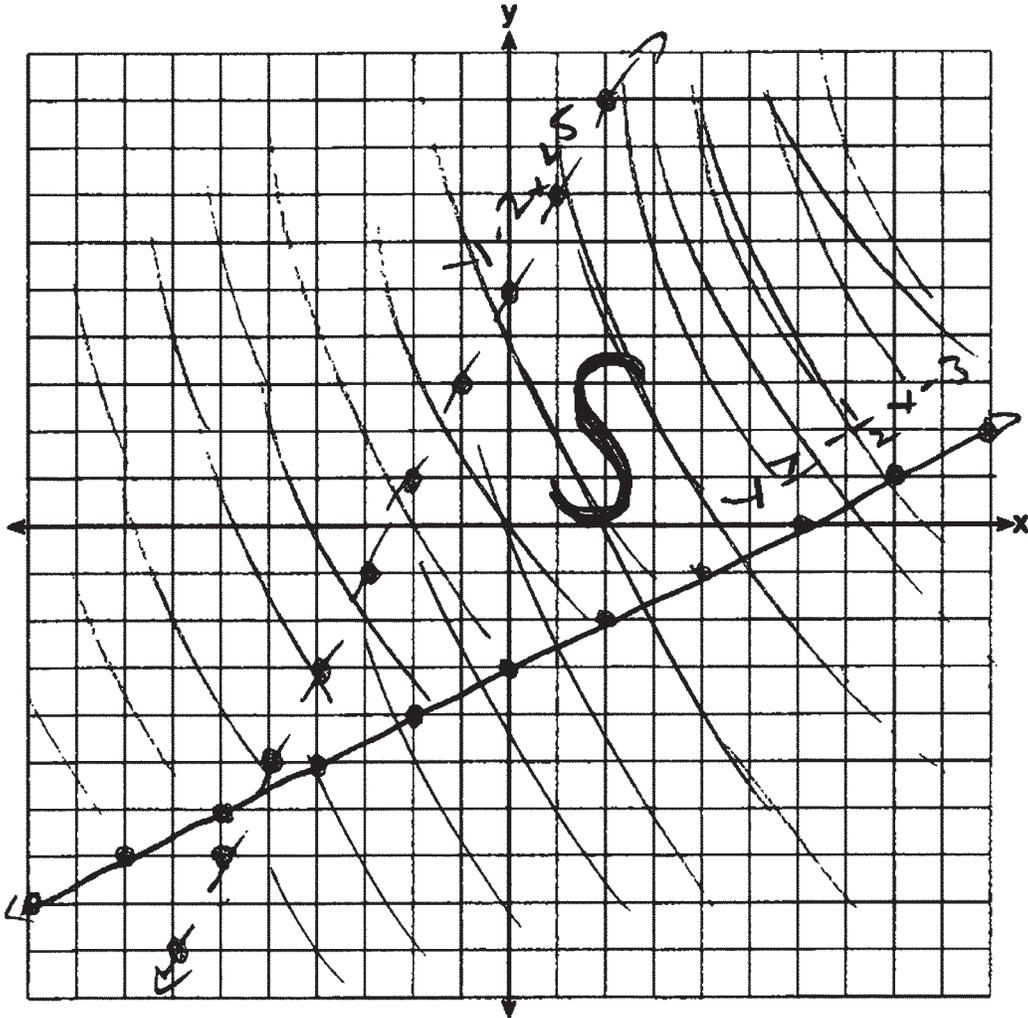
**Score 3:** The student did not label at least one of the inequalities.

Question 33

33 Graph the following system of inequalities on the set of axes below.

$$y \geq -\frac{1}{2}x - 3$$

$$y - 2x < 5 \quad \rightarrow y < 2x + 5$$



State the coordinates of a point that is in the solution to this system. Justify your answer.

$(0, 0)$

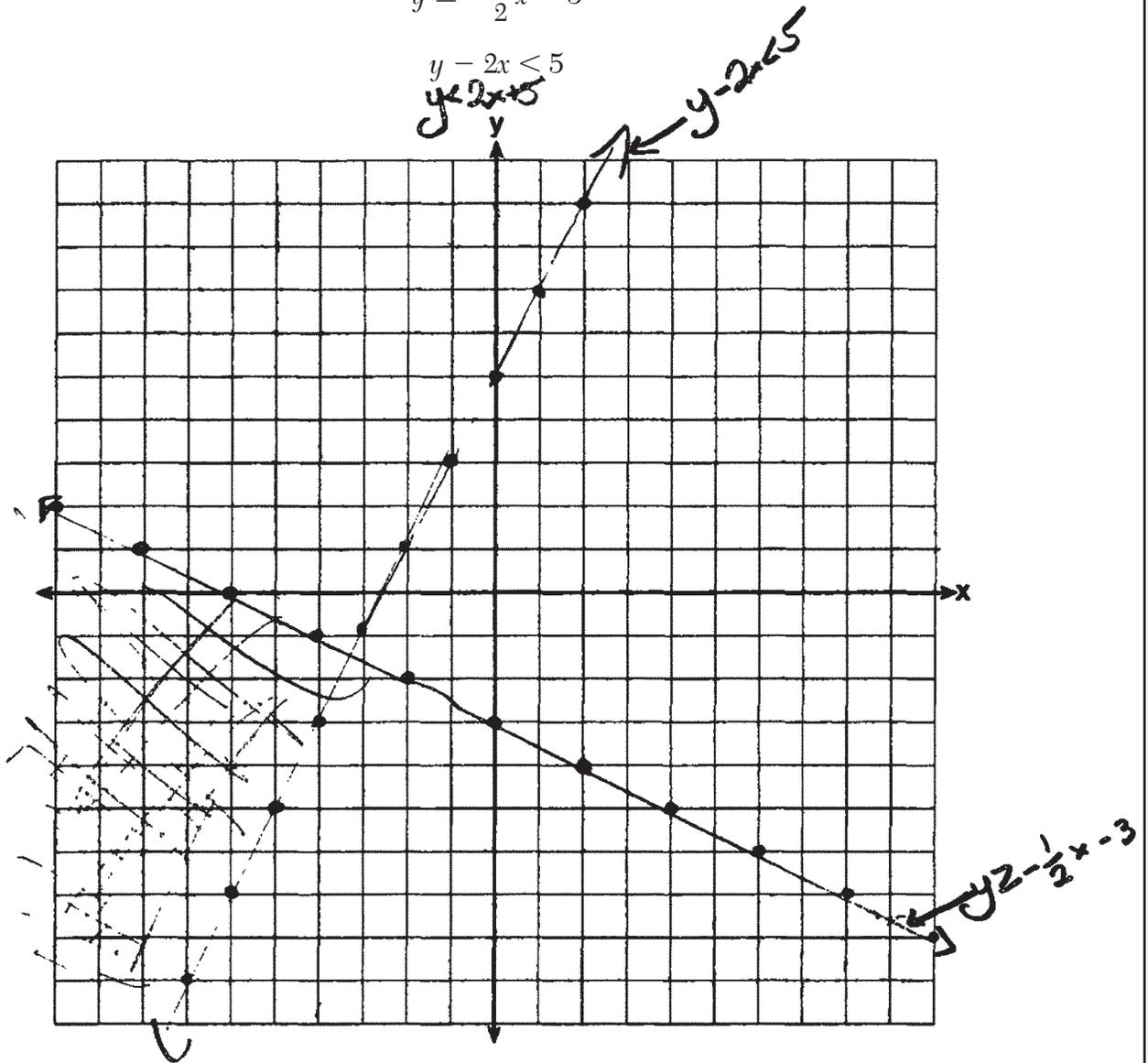
**Score 2:** The student graphed one inequality correctly and stated a correct point.

Question 33

33 Graph the following system of inequalities on the set of axes below.

$$y \geq -\frac{1}{2}x - 3$$

$$y - 2x < 5$$



State the coordinates of a point that is in the solution to this system. Justify your answer.

$(-7, -2)$

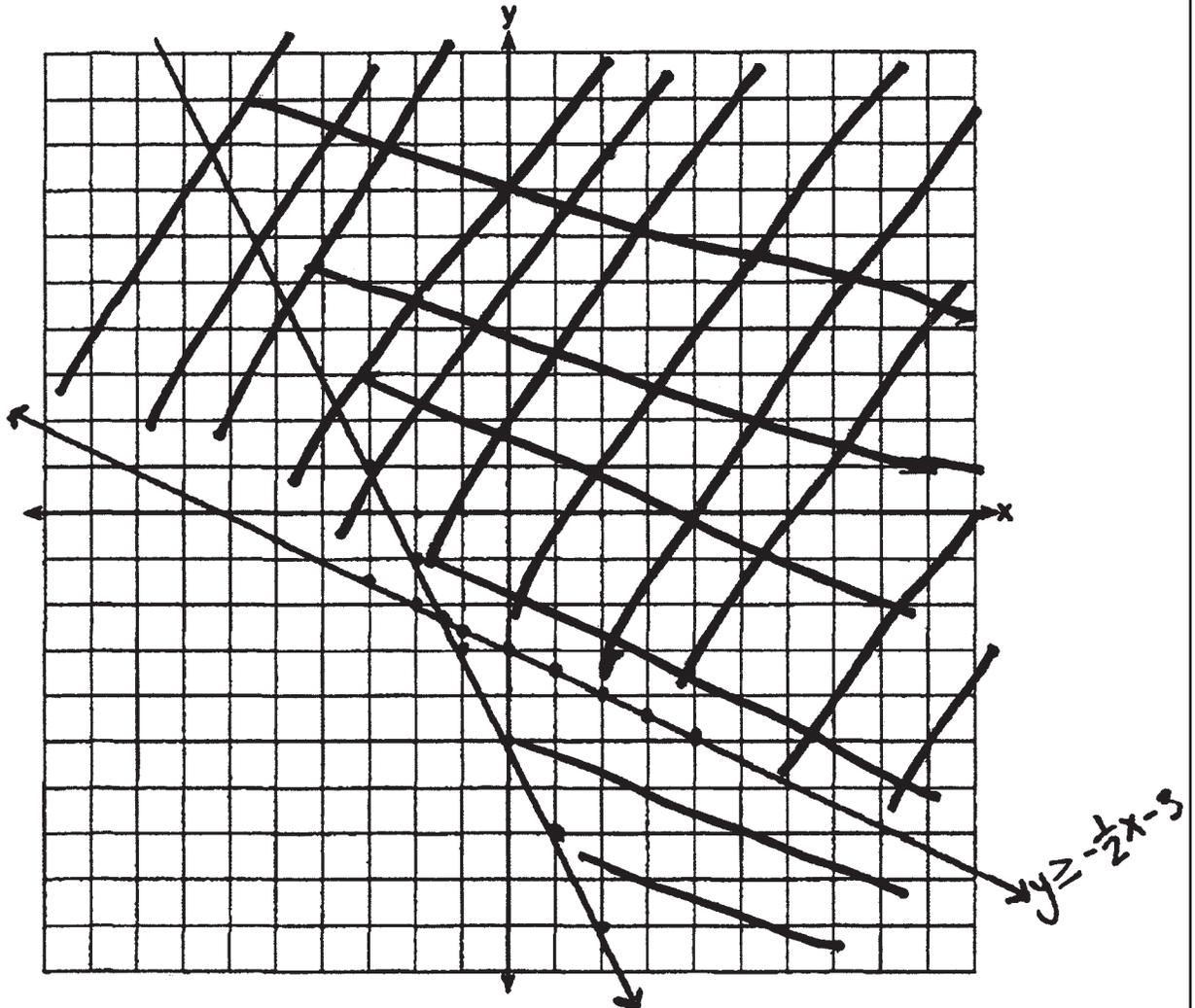
**Score 2:** The student made one graphing error with shading and stated an appropriate point, but the justification is missing.

Question 33

33 Graph the following system of inequalities on the set of axes below.

$$y \geq -\frac{1}{2}x - 3$$

$$y - 2x < 5$$



State the coordinates of a point that is in the solution to this system. Justify your answer.

$(-1.33, -2.33)$

**Score 1:** The student graphed and labeled one inequality correctly.

Question 33

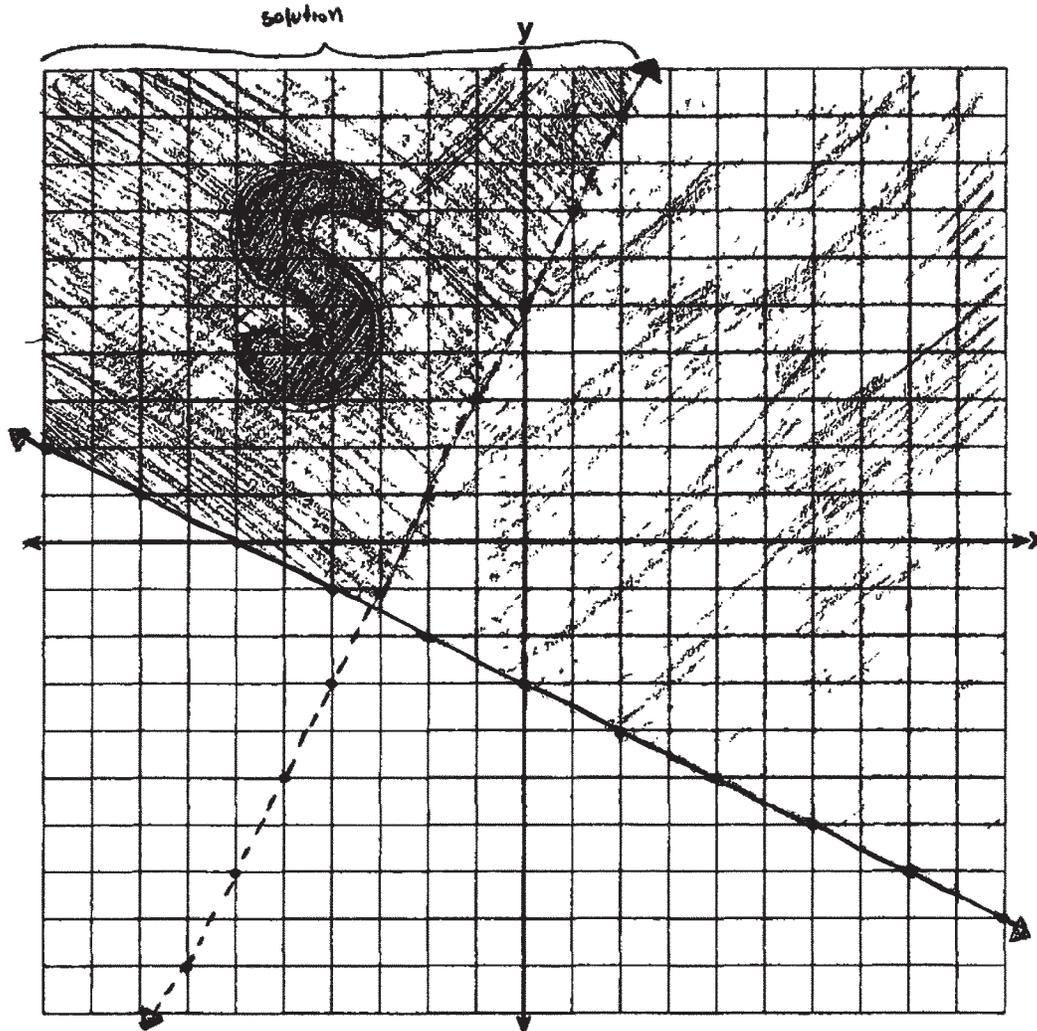
33 Graph the following system of inequalities on the set of axes below.

$$y \geq -\frac{1}{2}x - 3$$

$$y - 2x < 5$$

$$y - 2x < 5$$

$$y < 2x + 5$$



State the coordinates of a point that is in the solution to this system. Justify your answer.

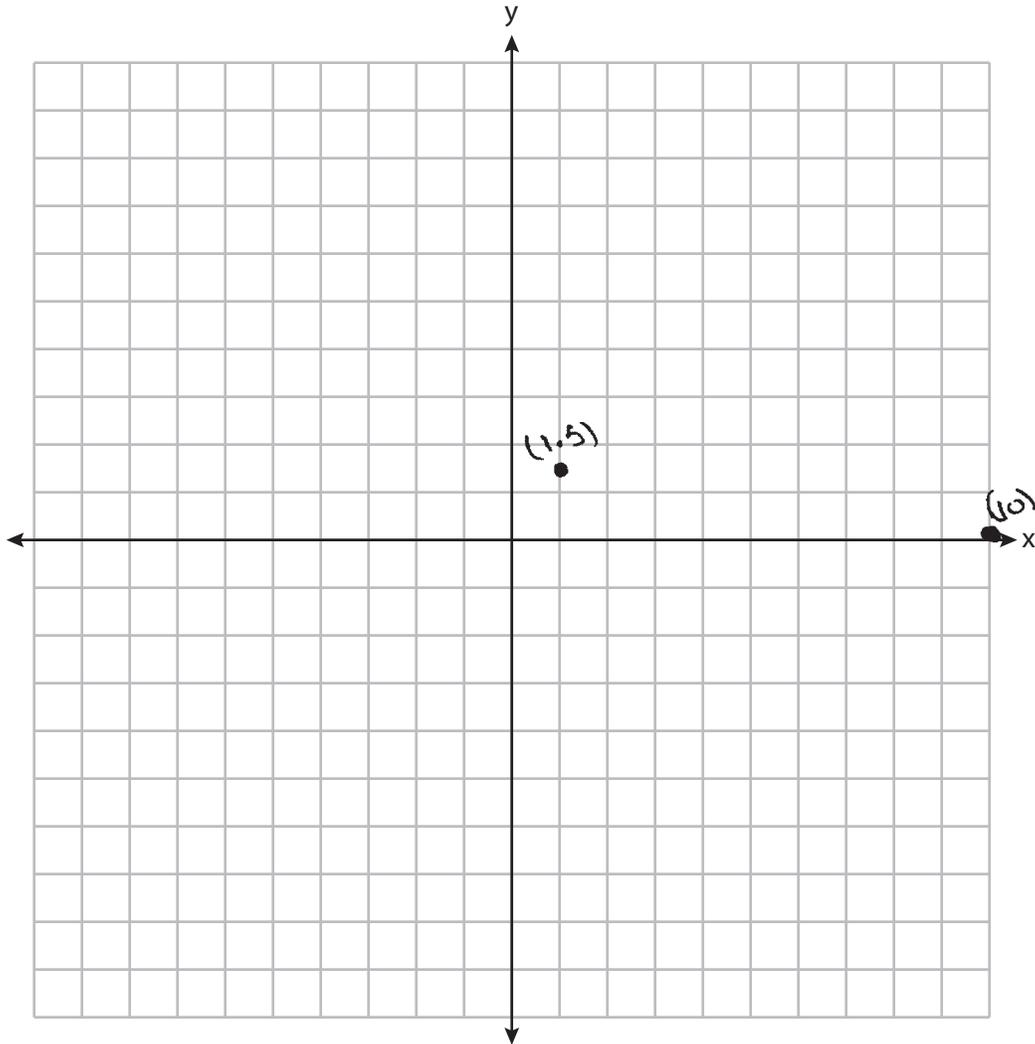
**Score 0:** The student made one graphing error, did not label at least one line, and did not state and justify a point in the solution set.

Question 33

33 Graph the following system of inequalities on the set of axes below.

$$y \geq -\frac{1}{2}x - 3$$

$$y - 2x < 5$$



State the coordinates of a point that is in the solution to this system. Justify your answer.

(1.5) (10)

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

**Question 34**

34 Using the quadratic formula, solve  $x^2 - 6x + 3 = 0$ .

Express the answer in simplest radical form.

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

$$X = \frac{6 \pm \sqrt{(-6)^2 - 4(1)(3)}}{2(1)}$$

$$X = \frac{6 \pm \sqrt{24}}{2}$$

$$X = \frac{6 \pm \sqrt{4} \sqrt{6}}{2}$$

$$X = \frac{6 \pm 2\sqrt{6}}{2}$$

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

**Question 34**

34 Using the quadratic formula, solve  $x^2 - 6x + 3 = 0$ .

Express the answer in simplest radical form.

$$\begin{aligned}x^2 - 6x + 3 &= 0 \\ \frac{6 \pm \sqrt{(-6)^2 - 4(1)(3)}}{2(1)} \\ \frac{6 \pm \sqrt{24}}{2} \\ \frac{6 \pm 2\sqrt{6}}{2} &\rightarrow \text{reduce by } 2 \\ \boxed{3 \pm \sqrt{6} = x}\end{aligned}$$

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

Question 34

34 Using the quadratic formula, solve  $x^2 - 6x + 3 = 0$ .

Express the answer in simplest radical form.

$$\begin{aligned}x^2 - 6x + 3 &= 0 \\x &= \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(3)}}{2(1)} \\x &= \frac{6 \pm \sqrt{24}}{2} && \sqrt{24} \\x &= \frac{6 \pm 2\sqrt{3}}{2} && \sqrt{4\sqrt{3}} \\x &= \frac{6 \pm 2\sqrt{3}}{2} && 2\sqrt{3} \\x &= \frac{6 + 2\sqrt{3}}{2} && \swarrow \\x &= \frac{6 - 2\sqrt{3}}{2} && \searrow \\x &= 3 + \sqrt{3} && x = 3 - \sqrt{3}\end{aligned}$$

**Score 3:** The student made one simplification error.

Question 34

34 Using the quadratic formula, solve  $x^2 - 6x + 3 = 0$ .

Express the answer in simplest radical form.

$$x^2 - 6x + 3 = 0$$
$$a=1 \quad b=-6 \quad c=3$$
$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(3)}}{2(1)}$$

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

$$x = 3 \pm 2\sqrt{6}$$

**Score 3:** The student made one simplification error.

Question 34

34 Using the quadratic formula, solve  $x^2 - 6x + 3 = 0$ .

Express the answer in simplest radical form.

$$x^2 - 6x + 3 = 0$$

A = 1  
B = -6  
C = 3

$$x = \frac{-b \pm \sqrt{b^2 - 4AC}}{2A}$$
$$x = \frac{6 \pm \sqrt{(-6)^2 - 4(1)(3)}}{2(1)}$$
$$x = \frac{6 \pm \sqrt{24}}{2}$$
$$x = \frac{6 + \sqrt{24}}{2} \quad \left| \quad x = \frac{6 - \sqrt{24}}{2}\right.$$
$$x = 5.44948974278 \quad \left| \quad x = 0.550510257217\right.$$

$x \approx 5.4$                        $x \approx 0.6$

5.4 and 0.6

**Score 2:** The student wrote  $x = \frac{6 \pm \sqrt{24}}{2}$ , but did not express the answer in simplest radical form.

Question 34

34 Using the quadratic formula, solve  $x^2 - 6x + 3 = 0$ .

Express the answer in simplest radical form.

$$\begin{array}{l} x^2 - 6x + 3 = 0 \\ \quad \quad \quad -3 \quad -3 \\ \hline x^2 - 6x + 9 = -3 + 9 \\ \quad \quad \quad +9 \quad +9 \\ \hline x^2 - 6x + 9 = 6 \\ \hline \sqrt{(x-3)^2} = \sqrt{6} \\ x-3 = \sqrt{6} \\ \quad \quad +3 \quad \quad +3 \\ \hline x = 3 \pm \sqrt{6} \end{array}$$

**Score 2:** The student solved the equation by a method other than using the quadratic formula.

Question 34

34 Using the quadratic formula, solve  $x^2 - 6x + 3 = 0$ .  $y = ax + b$

Express the answer in simplest radical form.  $\sqrt{\quad}$

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

$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(3)}}{2(1)}$$

$$x = \frac{6 \pm \sqrt{36 - 12}}{2}$$

$$x = \frac{6 \pm \sqrt{24}}{2}$$

$$x = 3 \pm \sqrt{24} \quad \left\{ \begin{array}{l} \sqrt{6} = \\ \sqrt{4} = 2 \end{array} \right.$$

$$x = 3 + 2\sqrt{6}$$

$$x = 5\sqrt{6}$$

(?)

$$ax^2 + bx + c = 0$$

$x^2 - 6x + 3 = 0$

$a = 1$   
 $b = -6$   
 $c = 3$

**Score 2:** The student made two simplification errors.

**Question 34**

34 Using the quadratic formula, solve  $x^2 - 6x + 3 = 0$ .

Express the answer in simplest radical form.

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

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

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

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

$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(3)}}{2(1)}$$

$$x = 20.4$$

$$x = 15.6$$

**Score 1:** The student made a correct substitution into the quadratic formula, but no further correct work was shown.

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**Question 34**

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34 Using the quadratic formula, solve  $x^2 - 6x + 3 = 0$ .

Express the answer in simplest radical form.

$$\begin{aligned}x^2 - 6x + 3 &= 0 \\&\quad -3 \quad -3 \\x^2 - 6x &= -3 \\x^2 - 6x + 9 &= -3 + 9 \\x^2 - 6x + 9 &= 6 \\(x-3)^2 &= 6\end{aligned}$$

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**Score 1:** The student used the method of completing the square and did not solve past  $(x - p)^2 = q$ .

Question 34

34 Using the quadratic formula, solve  $x^2 - 6x + 3 = 0$ .

Express the answer in simplest radical form.

$$x^2 - 6x + 3 = 0$$

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

$$x = \frac{-6 \pm \sqrt{6^2 - 4(1)(3)}}{2(1)} = \frac{-6 \pm \sqrt{36 - 12}}{2}$$

$$\frac{-6 \pm \sqrt{16}}{2(1)}$$

$$\frac{-6 \pm \sqrt{16}}{-12}$$

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

**Question 35**

**35** Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

$$\begin{aligned} x + y &= 25 \\ 2.25x + 1.50y &= 45 \end{aligned}$$

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

$$\begin{aligned} x + y &= 25 \\ x + y &= 25 \\ -y &= -y \\ x &= 25 - y \end{aligned}$$

$$\begin{aligned} 2.25(25 - y) + 1.5y &= 45 \\ 56.25 - 2.25y + 1.5y &= 45 \\ 56.25 - 0.75y &= 45 \\ -56.25 & \end{aligned}$$

$$\begin{aligned} -0.75y &= -11.25 \\ \frac{-0.75y}{-0.75} &= \frac{-11.25}{-0.75} \\ y &= 15 \end{aligned}$$

$$\begin{aligned} x + 15 &= 25 \\ -15 &= -15 \\ x &= 10 \end{aligned}$$

A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

6 hot dogs

$$2.25x + 1.5(4) \leq 20$$

$$\begin{aligned} 2.25x + 6 &\leq 20 \\ -6 &= -6 \end{aligned}$$

$$\begin{aligned} \frac{2.25x}{2.25} &= \frac{14}{2.25} \end{aligned}$$

$$x \leq 6.2 \text{ round down}$$

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

**Question 35**

**35** Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

$$\begin{aligned} x &= \text{hot dog} \\ y &= \text{soda} \end{aligned} \quad \begin{aligned} x + y &= 25 \\ 2.25x + 1.50y &= 45.00 \end{aligned}$$

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

$$\begin{aligned} & \begin{array}{r} 75 \\ 2.25x + 1.5y = 45 \\ \times \frac{2}{3} \quad \times \frac{2}{3} \quad \times \frac{2}{3} \\ \hline 1.5x + y = 30 \end{array} & \begin{array}{r} 1.5x + y = 30 \\ -(x + y = 25) \\ \hline 0.5x = 5 \\ \times 2 \\ \hline x = 10 \end{array} \\ & \begin{array}{r} 2.25x + 1.5y = 45 \\ 2.25x + 2.25y = 45 \\ \hline 45 = 45 \end{array} & \begin{array}{r} 10 + y = 25 \\ \hline x = 10 \quad y = 15 \end{array} \end{aligned}$$

A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

$$\begin{aligned} 2.25x + 4(1.50) &= 20 \\ 2.25x + 6 &= 20 \\ 2.25x &= 14 \\ \frac{2.25x}{2.25} &= \frac{14}{2.25} \\ x &= 6.\bar{2} \\ \boxed{6 \text{ hot dogs}} \end{aligned}$$

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

Question 35

35 Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

$$\begin{aligned}x + y &= 25 \\ 2.25x + 1.50y &= 45\end{aligned}$$

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

$$\begin{array}{r}x + y = 25 \\ -x \phantom{+ y} = -x \\ \hline y = 25 - x\end{array}$$

10 hot dogs  
15 sodas

$$\begin{array}{r}2.25x + 1.50(25 - x) = 45 \\ 2.25x + 37.5 - 1.5x = 45 \\ -37.5 \phantom{- 1.5x} \\ \hline .75x = 7.5 \\ \phantom{.75x} \cdot .75 \\ \hline x = 10\end{array}$$

$$\begin{array}{r}10 + y = 25 \\ -10 \phantom{+ y} \\ \hline y = 15\end{array}$$

$$\begin{array}{r}2.25(10) + 1.5(15) = 45 \\ 22.5 + 22.5 = 45\end{array}$$

A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

$$\begin{array}{r}2.25x + 1.50(4) \leq 20 \\ 2.25x + 6 \leq 20 \\ \phantom{2.25x} - 6 \phantom{\leq 20} \\ \hline 2.25x \leq 14 \\ \phantom{2.25x} \cdot 2.25 \\ \hline x \leq 6\end{array}$$

$x \leq 6$

**Score 5:** The student did not state the maximum number of hot dogs.

Question 35

35 Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

$$\boxed{\begin{matrix} x + y = 25 \\ 2.25x + 1.5y = 45 \end{matrix}}$$

$$\begin{aligned} x + y &= 25 \\ 2.25x + 1.5y &= 45 \\ y &= 25 - x & y = 25 - 6 & y = 19 \\ 2.25x + 1.5(25 - x) &= 45 \\ 2.25x + 37.5 - 1.5x &= 45 & \frac{1.25x}{1.25} &= \frac{7.5}{1.25} \\ 1.25x + 37.5 &= 45 & x &= 6 \\ -37.5 & \quad -37.5 & & \end{aligned}$$

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

$$\begin{aligned} x &= 6 \\ y &= 19 \end{aligned}$$

A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

$$\begin{aligned} 4(1.50) + x &= 20 \\ 6 + x &= 20 \\ -6 & \quad -6 \\ x &= 14 \\ x &= \$14 \\ \boxed{6} \end{aligned}$$

**Score 5:** The student made one transcription error in rewriting  $2.25x$  as  $2.75x$ .

Question 35

35 Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

10 hotdogs sold  
and  
15 sodas were sold

$$45 = 2.25x + 1.50y$$

$$25 = x + y$$

$$2.25 \times 10 = 22.5$$

$$1.50 \times 15 = 22.5$$

45

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

10 hotdogs and 15 sodas were sold

A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

$$1.5 \times 4 = 6$$

$$20 - 6 = 14$$

$$14 / 2.25 = 6.22$$

maximum

6 hotdogs & 4 sodas  
were  
sold

**Score 5:** The student found  $x = 10$  and  $y = 15$  by a method other than algebraic.

Question 35

35 Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

$$25 = x + y$$

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

Cameron sold 15 sodas and 10 hot dogs.

A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

A customer is able to buy 6 hot dogs if he purchased 4 sodas.

$$\begin{array}{r} 20 \\ - 6 \\ \hline 14 \end{array} \quad \begin{array}{r} 2.25 \\ \times 6 \\ \hline 13.5 \end{array}$$

**Score 4:** The student wrote one correct equation, stated 15 sodas and 10 hot dogs, and determined the maximum number of hot dogs.

Question 35

35 Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

~~2.25x + 1.5y = 45~~  
 $2.25x + 1.5y = 45$

$$x + y = 25$$

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

$$x = 20 - 0.\bar{6}y$$

$$y = 30 - 1.5x$$

$$\begin{array}{r} 2.25x + 1.5y = 45 \\ -2.25x \phantom{+ 1.5y} = -2.25x \\ \hline 1.5y = -2.25x + 45 \end{array} \quad \begin{array}{l} x = (20, 0) \\ y = (0, 30) \end{array}$$

$$\frac{1.5y = -2.25x + 45}{1.5}$$

$$y = -1.5x + 30$$

$$x = 20 - 0.\bar{6}y$$

A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

The maximum number of hot dogs that the customer can purchase if he buys four sodas are 6 hot dogs.

$$2.25x + 1.5(4) = 20$$

$$2.25x + 6 = 20$$

$$\frac{-6 \quad -6}{\hline} 2.25x = 14$$

$$\frac{2.25x = 14}{2.25}$$

$$x = 6.\bar{2}$$

**Score 4:** The student wrote two correct equations and determined the maximum number of hot dogs.

**Question 35**

35 Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

$$\boxed{\$2.25x + \$1.50y = \$45.00}$$

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

$$\$2.25x + 1.50y = \$45.00$$

A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

$$1.50 \cdot 4 = 6.00$$

$$20 - 6 = 14$$

$$14 \div 2.25 = 6.2$$

$$\boxed{\text{Max} = 6 \text{ hotdogs}}$$

**Score 3:** The student wrote one correct equation and determined the maximum number of hot dogs.

Question 35

35 Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

$$y = 2.25x + 1.50y = 25$$

2.

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

$$2.25h + 1.50s = 25 \quad \begin{array}{l} 2.25 \times 10 = 22.5 \\ 1.50 \times 15 = 22.5 \end{array}$$

$$22.5 + 22.5 = 45.00$$

Cameron sold 10 hot dogs and 15 sodas

A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

$$2.25h + 1.50s = 20$$

$$1.50 \times 4 = 6.00 \quad 13.5 + 6.00 = 19.5$$

$$2.25 \times 6 = 13.5$$

The maximum this customer can buy is 6 hot dogs because if she or he buys more than 6 it will pass the limit of 20.

Score 3: The student stated 10 hot dogs and 15 sodas and found the maximum number of hot dogs.

Question 35

35 Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

$$2.25h + 1.50s = 45.00$$

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

$\begin{array}{r} 2.25(19.33) + 1.50s = 45.00 \\ 43.49 + 1.50s = 45.00 \\ -43.49 \quad \dots \\ \hline 1.50s \qquad 1.51 \\ 1.50 \qquad 1.50 \\ \hline s = 1 \end{array}$	$\begin{array}{r} 2.25h + 1.50s = 45.00 \\ -1.50 \quad -1.50 \\ \hline 2.25h \quad 43.50 \\ -2.25 \quad -2.25 \\ \hline h = 19.33 \end{array}$	$19.33 \div 2.25 = 8.59$ but 9 $9 \times 2.25 = 20.25$ $20.25 + 1.50 = 21.75$ $21.75 + 1.50 = 23.25$ $23.25 + 1.50 = 24.75$ $24.75 + 1.50 = 26.25$ $26.25 + 1.50 = 27.75$ $27.75 + 1.50 = 29.25$ $29.25 + 1.50 = 30.75$ $30.75 + 1.50 = 32.25$ $32.25 + 1.50 = 33.75$ $33.75 + 1.50 = 35.25$ $35.25 + 1.50 = 36.75$ $36.75 + 1.50 = 38.25$ $38.25 + 1.50 = 39.75$ $39.75 + 1.50 = 41.25$ $41.25 + 1.50 = 42.75$ $42.75 + 1.50 = 44.25$ $44.25 + 1.50 = 45.75$
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A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

$$4 \times 1.50 = 6.00$$

$$20 - 6.00 = 14.00$$

$$14 \div 2.25 = 6.2$$

6 dogs

Score 2: The student only determined the maximum number of hot dogs.

**Question 35**

35 Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

Let

$x =$  number of hot dogs

$y =$  number of sodas

$$2.25x + 1.50y = 45.00$$

$$x + y = 25$$

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

$$2.25(10) + 1.50(15) = 45.00$$

$$22.5 + 22.5 = 45$$

Cameron sold 10 hot dogs and 15  
cans of soda

A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

$$2.25x + 1.50y = 20$$

**Score 2:** The student wrote one correct equation and stated 10 hot dogs and 15 sodas.

### Question 35

35 Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

$$y = 45.00 (2.25 \cdot 1.50)$$

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

He was  
able to sell 10  
hot dogs and  
15 sodas

A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

4 sodas  
leaves the customer  
enough to buy 6  
Hotdogs

**Score 2:** The student stated 10 hot dogs and 15 sodas and stated the maximum number of hot dogs.

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**Question 35**

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**35** Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

$$\begin{aligned} 2.25x + 1.50y &= 45 \\ 2.25x + 1.50y &= 25 \end{aligned}$$

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

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**Score 1:** The student only stated one equation correctly.

Question 35

35 Cameron sold hot dogs and sodas at a concession stand. He sold a total of 25 items for \$45.00. A hot dog sold for \$2.25 and a soda sold for \$1.50. All prices include tax.

If  $x$  represents the number of hot dogs sold and  $y$  represents the number of sodas sold, write a system of equations that models this situation.

$$\begin{aligned}x &= 25x + 45x \\ y &= 2.25 + 1.50\end{aligned}$$

Determine algebraically the number of hot dogs Cameron sold and the number of sodas he sold.

$$\begin{array}{r} 25 + 45 \\ 2.25 + 1.50 \end{array} = 73.75$$

the number of hot dogs and of sodas is 73.75

A customer has \$20 to spend at the concession stand. Determine and state the maximum number of hot dogs he can purchase if he buys four sodas.

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

## Regents Examination in Algebra I – AUGUST 2025

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

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