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

ALGEBRA I

Wednesday, January 25, 2023 — 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 37 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 the expression $2x(x - 4) - 3(x + 5)$ is written in simplest form, the result is

(1) $2x^2 - 11x - 15$

(2) $2x^2 - 11x + 5$

(3) $2x^2 - 3x - 19$

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

2 The point $(3,w)$ is on the graph of $y = 2x + 7$. What is the value of w?

(1) -2

(2) -4

(3) 10

(4) 13

3 Students were asked to write $2x^3 + 3x + 4x^2 + 1$ in standard form. Four student responses are shown below.

Alexa: $4x^2 + 3x + 2x^3 + 1$
Carol: $2x^3 + 3x + 4x^2 + 1$
Ryan: $2x^3 + 4x^2 + 3x + 1$
Eric: $1 + 2x^3 + 3x + 4x^2$

Which student's response is correct?

(1) Alexa

(2) Carol

(3) Ryan

(4) Eric

4 Given $f(x) = -3x^2 + 10$, what is the value of $f(-2)$?

(1) -26

(2) -2

(3) 22

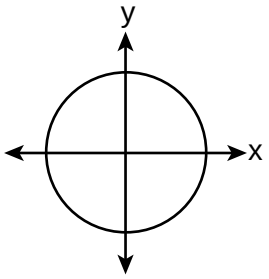
(4) 46

Use this space for computations.

5 Which relation is a function?

{(1,3), (2,1), (3,1), (4,7)}

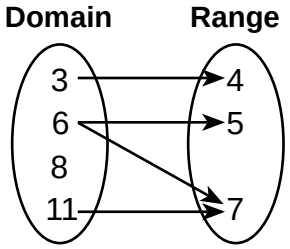
(1)



(3)

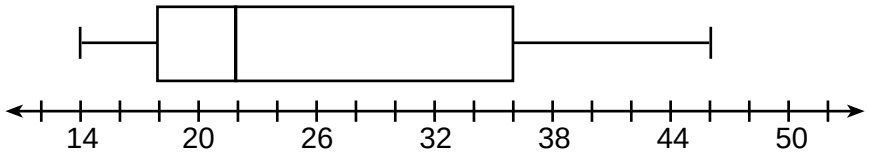
Input	Output
−6	−2
−4	2
7	3
7	5

(2)



(4)

6 What is the value of the third quartile in the box plot shown below?



(1) 18

(2) 22

(3) 36

(4) 46

7 What is the solution to $2 + 3(2a + 1) = 3(a + 2)$?

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

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

(3) $-\frac{3}{7}$

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

Use this space for computations.

8 One Saturday afternoon, three friends decided to keep track of the number of text messages they received each hour from 8 a.m. to noon. The results are shown below.

Emily said that the number of messages she received increased by 8 each hour.

Jessica said that the number of messages she received doubled every hour.

Chris said that he received 3 messages the first hour, 10 the second hour, none the third hour, and 15 the last hour.

Which of the friends' responses best classifies the number of messages they received each hour as a linear function?

(1) Emily, only
(2) Jessica, only
(3) Emily and Chris
(4) Jessica and Chris

9 Which expression is equivalent to $(x + 4)^2(x + 4)^3$?

(1) $(x + 4)^6$
(2) $(x + 4)^5$
(3) $(x^2 + 16)^6$
(4) $(x^2 + 16)^5$

10 Caitlin graphs the function $f(x) = ax^2$, where a is a positive integer. If Caitlin multiplies a by -2, when compared to $f(x)$, the new graph will become

(1) narrower and open downward
(2) narrower and open upward
(3) wider and open downward
(4) wider and open upward

11 Sunny purchases a new car for \$29,873. The car depreciates 20% annually.

Which expression can be used to determine the value of the car after t years?

(1) $29{,}873(.20)^t$
(2) $29{,}873(20)^t$
(3) $29{,}873(1 - .20)^t$
(4) $29{,}873(1 + .20)^t$

12 If $f(x) = x^2 + 2x + 1$ and $g(x) = 7x - 5$, for which values of x is $f(x) = g(x)$?

(1) -1 and 6
(2) -6 and -1
(3) -3 and -2
(4) 2 and 3

Use this space for computations.

13 Skyler mows lawns in the summer. The function $f(x)$ is used to model the amount of money earned, where x is the number of lawns completely mowed. A reasonable domain for this function would be

(1) real numbers
(2) rational numbers
(3) irrational numbers
(4) natural numbers

14 Which expression is equivalent to $2x^2 + 8x - 10$?

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

15 Ian throws a ball up in the air and lets it fall to the ground. The height of the ball, $h(t)$, is modeled by the equation $h(t) = -16t^2 + 6t + 3$, with $h(t)$ measured in feet, and time, t, measured in seconds. The number 3 in $h(t)$ represents

(1) the maximum height of the ball
(2) the height from which the ball is thrown
(3) the number of seconds it takes for the ball to reach the ground
(4) the number of seconds it takes for the ball to reach its maximum height

16 Thirty-two teams are participating in a basketball tournament. Only the winning teams in each round advance to the next round, as shown in the table below.

Number of Rounds Completed, x	0	1	2	3	4	5
Number of Teams Remaining, f(x)	32	16	8	4	2	1

Which function type best models the relationship between the number of rounds completed and the number of teams remaining?

(1) absolute value
(2) exponential
(3) linear
(4) quadratic

17 In a geometric sequence, the first term is 4 and the common ratio is -3. The fifth term of this sequence is

(1) 324
(2) 108
(3) -108
(4) -324

Use this space for computations.

18 The amount of energy, Q, in joules, needed to raise the temperature of m grams of a substance is given by the formula $Q = mC(T_f - T_i)$, where C is the specific heat capacity of the substance. If its initial temperature is T_i, an equation to find its final temperature, T_f, is

(1) $T_f = \frac{Q}{mC} - T_i$

(2) $T_f = \frac{Q}{mC} + T_i$

(3) $T_f = \frac{T_i + Q}{mC}$

(4) $T_f = \frac{Q - mC}{T_i}$

19 When using the method of completing the square, which equation is equivalent to $x^2 - 12x - 10 = 0$?

(1) $(x + 6)^2 = -26$

(2) $(x + 6)^2 = 46$

(3) $(x - 6)^2 = -26$

(4) $(x - 6)^2 = 46$

20 Which quadratic function has the *smallest* minimum value?

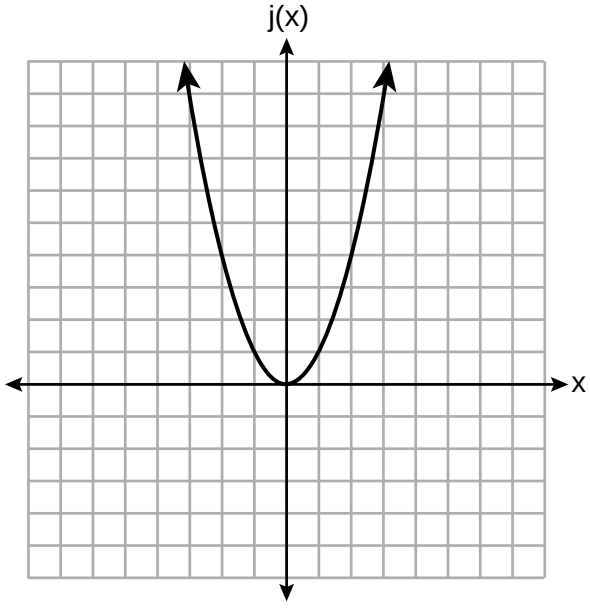
(1) $f(x) = 6x^2 + 5x - 2$

(2)

x	h(x)
0	6
1	2
2	0
3	0
4	2
5	6

(3) $g(x) = 6(x - 2)^2 - 2$

(4)



Use this space for computations.

21 Which representation yields the same outcome as the sequence defined recursively below?

$$a_1 = 3$$
$$a_n = -4 + a_{n-1}$$

(1) 3, 7, 11, 15, 19,…

(2) 3, −1, −5, −9, −13,…

(3) $a_n = 4n - 1$

(4) $a_n = 4 - n$

22 If the zeros of the function $g(x)$ are $\{-3,0,4\}$, which function could represent $g(x)$?

(1) $g(x) = (x + 3)(x - 4)$

(2) $g(x) = (x - 3)(x + 4)$

(3) $g(x) = x(x + 3)(x - 4)$

(4) $g(x) = x(x - 3)(x + 4)$

23 Morgan read that a snail moves about 72 feet per day. He performs the calculation $\frac{72\,\text{feet}}{1\,\text{day}} \bullet \frac{1\,\text{day}}{24\,\text{hours}} \bullet \frac{1\,\text{hour}}{60\,\text{minutes}} \bullet \frac{12\,\text{inches}}{1\,\text{foot}}$ to convert this rate to different units. What are the units for the converted rate?

(1) hours/inch

(2) minutes/inch

(3) inches/hour

(4) inches/minute

24 During summer vacation, Ben decides to sell hot dogs and pretzels on a food cart in Manhattan. It costs Ben \$0.50 for each hot dog and \$0.40 for each pretzel. He has only \$100 to spend each day on hot dogs and pretzels. He wants to sell at least 200 items each day. If h is the number of hot dogs and p is the number of pretzels, which inequality would be part of a system of inequalities used to determine the total number of hot dogs and pretzels Ben can sell?

(1) $h + p \leq 200$

(2) $h + p \geq 200$

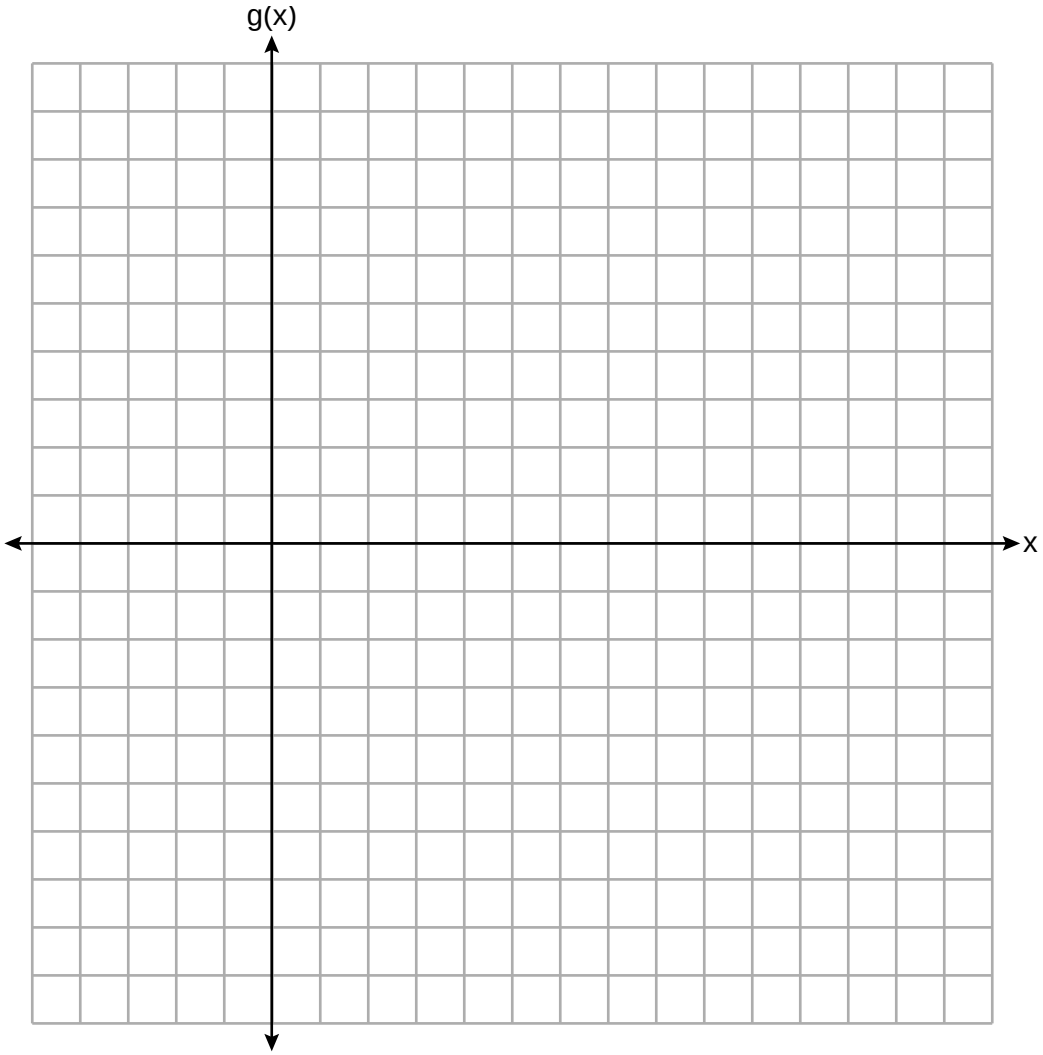
(3) $0.50h + 0.40p \geq 200$

(4) $0.50h + 0.40p \leq 200$

Part II

Answer all 8 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. [16]

25 Graph the function $g(x) = \sqrt{x+3}$ on the set of axes below.



26 The sixth-grade classes at West Road Elementary School were asked to vote on the location of their class trip. The results are shown in the table below.

	Playland	Splashdown	Fun Central
Boys	38	53	25
Girls	39	46	37

Determine, to the *nearest percent*, the percentage of girls who voted for Splashdown.

27 Solve the inequality $-\frac{2}{3}x + 6 > -12$ algebraically for x.

28 Determine the common difference of the arithmetic sequence in which $a_1 = 3$ and $a_4 = 15$.

29 Given: $A = \sqrt{363}$ and $B = \sqrt{27}$

Explain why $A + B$ is irrational.

Explain why $A \bullet B$ is rational.

30 Use the quadratic formula to solve $x^2 - 4x + 1 = 0$ for x.

Round the solutions to the *nearest hundredth*.

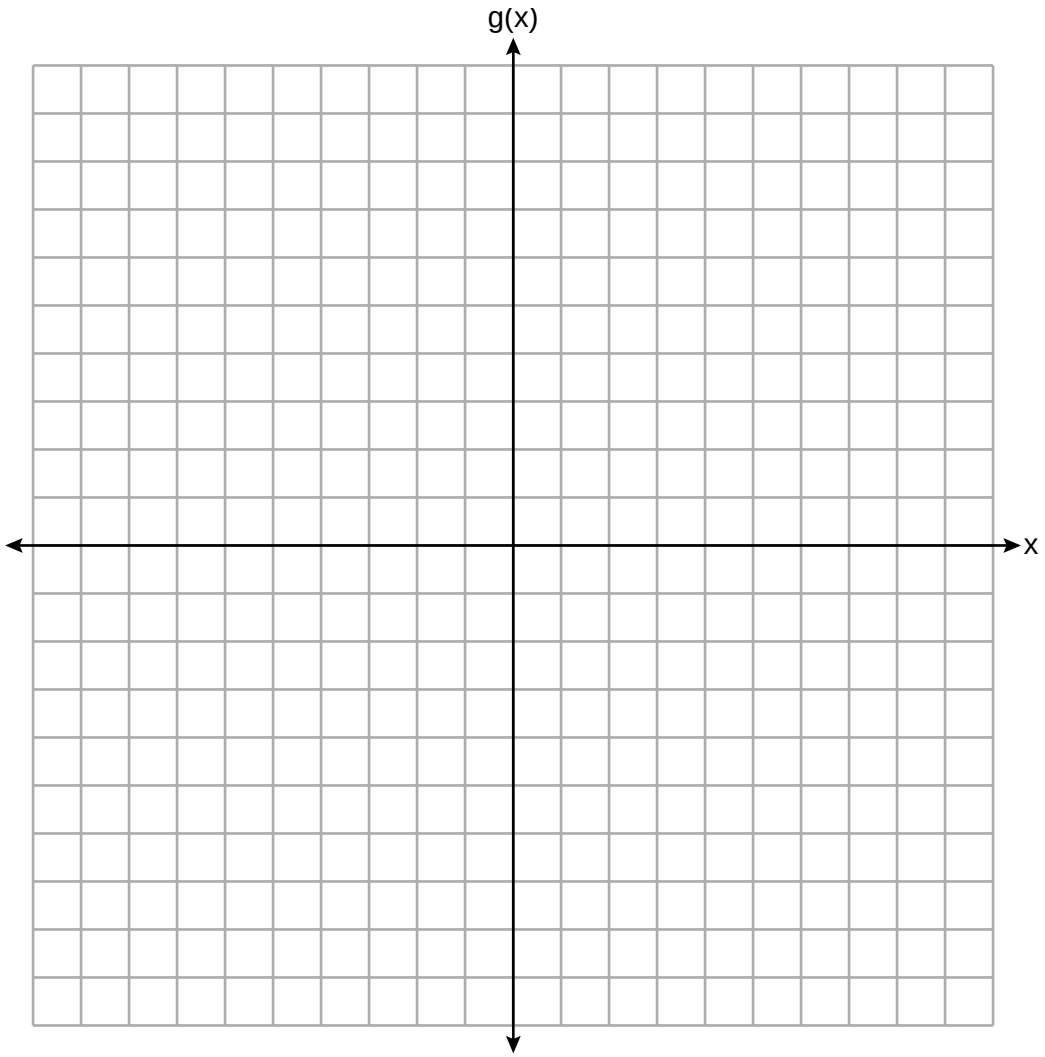
31 Factor completely:

$$4x^3 - 49x$$

32 The function g is defined as

$$g(x) = \begin{cases} |x + 3|, & x < -2 \\ x^2 + 1, & -2 \leq x \leq 2 \end{cases}$$

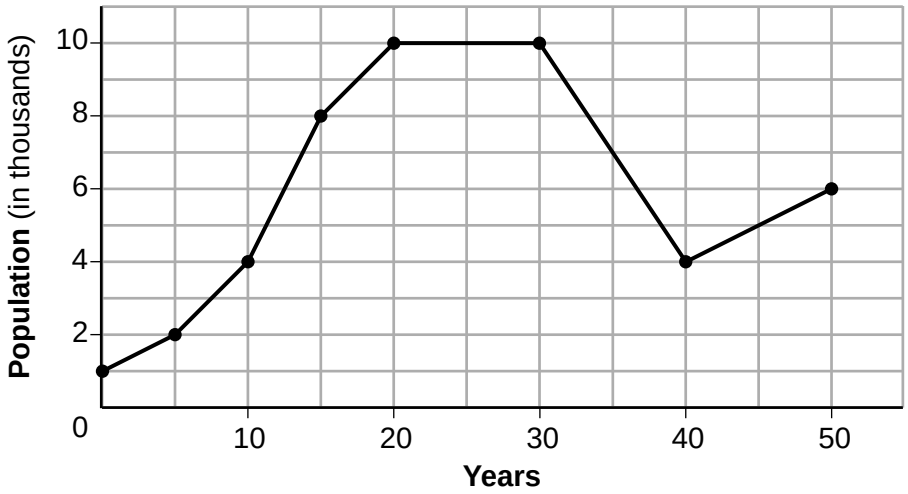
On the set of axes below, graph $g(x)$.



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]

33 Anessa is studying the changes in population in a town. The graph below shows the population over 50 years.



State the entire interval during which the population remained constant.

State the maximum population of the town over the 50-year period.

Determine the average rate of change from year 30 to year 40.

Explain what your average rate of change means from year 30 to year 40 in the context of the problem.

34 The table below shows the number of math classes missed during a school year for nine students, and their final exam scores.

Number of Classes Missed (x)	2	10	3	22	15	2	20	18	9
Final Exam Score (y)	99	72	90	35	60	80	40	43	75

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

State the correlation coefficient for your linear regression. Round your answer to the *nearest hundredth.*

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

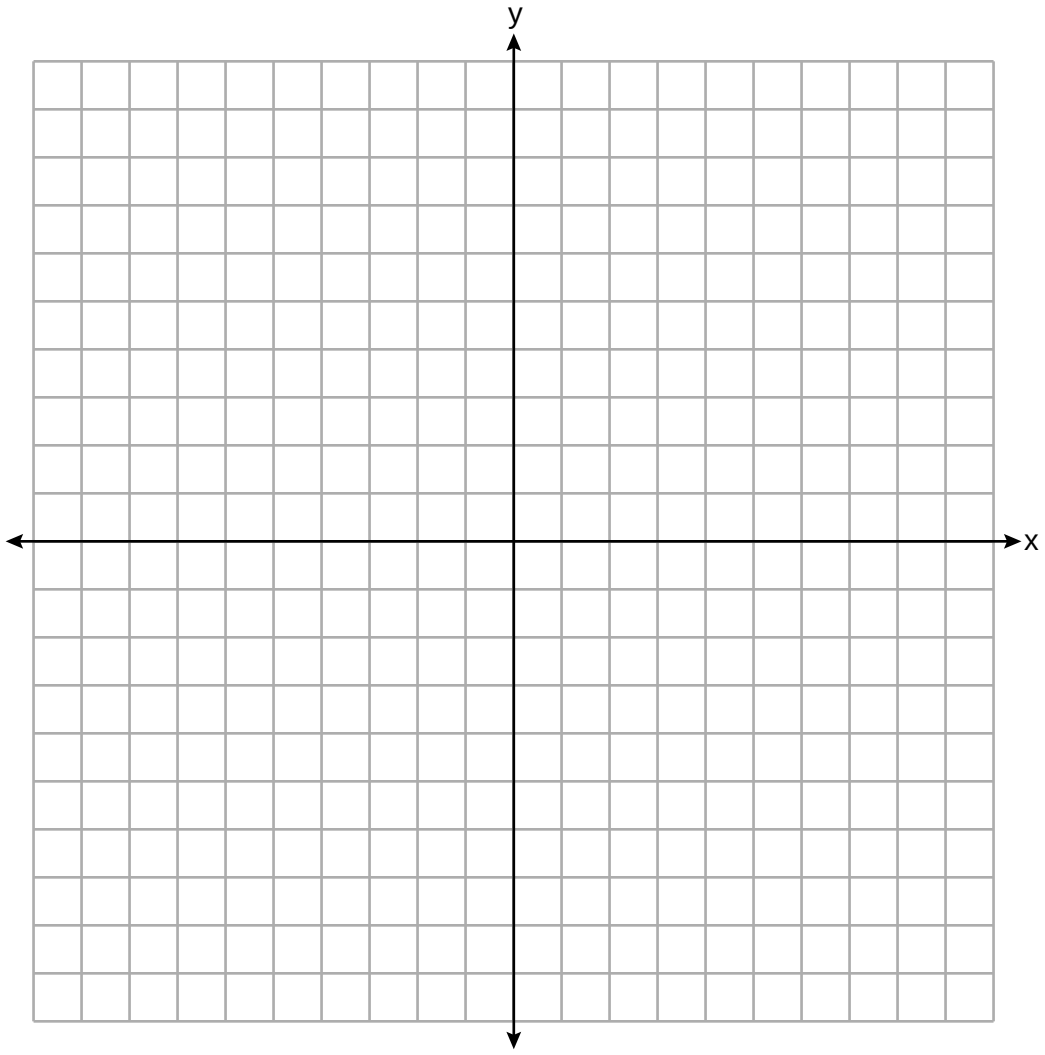
35 A fence was installed around the edge of a rectangular garden. The length, l, of the fence was 5 feet less than 3 times its width, w. The amount of fencing used was 90 feet.

Write a system of equations or write an equation using one variable that models this situation.

Determine algebraically the dimensions, in feet, of the garden.

36 Given: $3y - 9 \leq 12$
$y < -2x - 4$

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



State the coordinates of a point that satisfies both inequalities. Justify your answer.

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]

37 Aidan and his sister Ella are having a race. Aidan runs at a rate of 10 feet per second. Ella runs at a rate of 6 feet per second. Since Ella is younger, Aidan is letting her begin 30 feet ahead of the starting line.

Let y represent the distance from the starting line and x represent the time elapsed, in seconds.

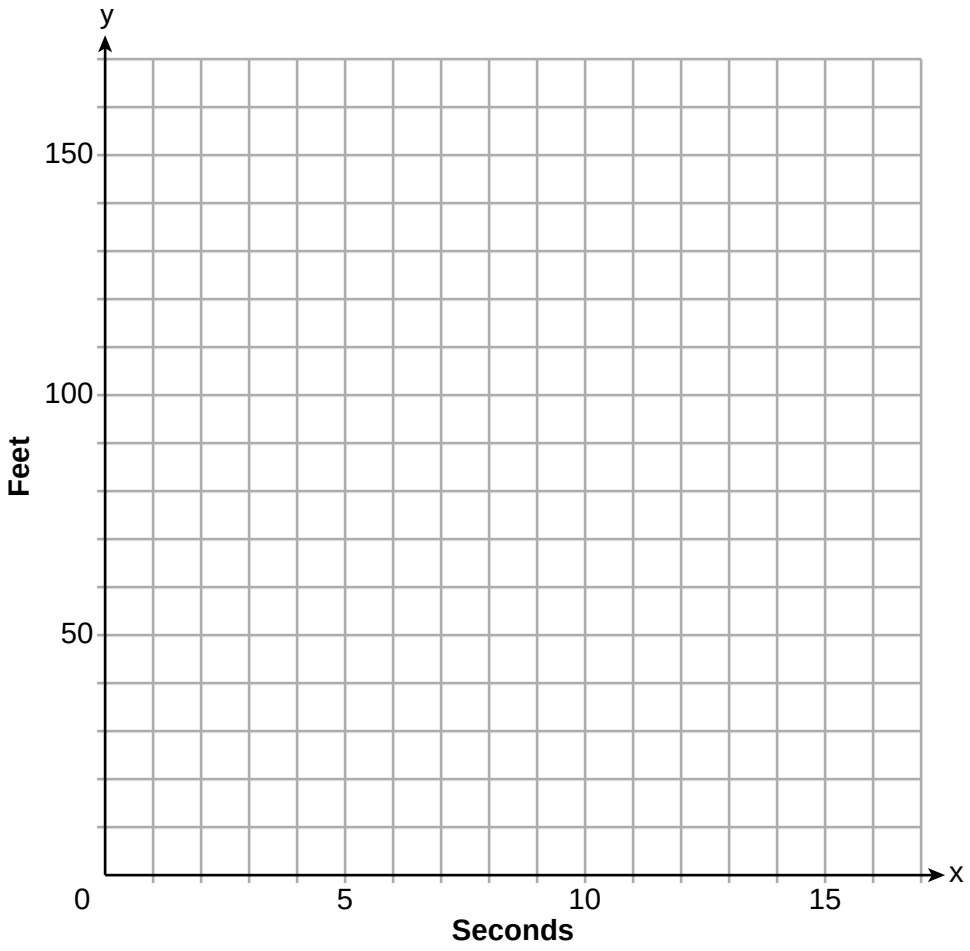
Write an equation to model the distance Aidan traveled.

Write an equation to model the distance Ella traveled.

Question 37 is continued on the next page.

Question 37 continued

On the set of axes below, graph your equations.



Exactly how many seconds does it take Aidan to catch up to Ella? Justify your answer.

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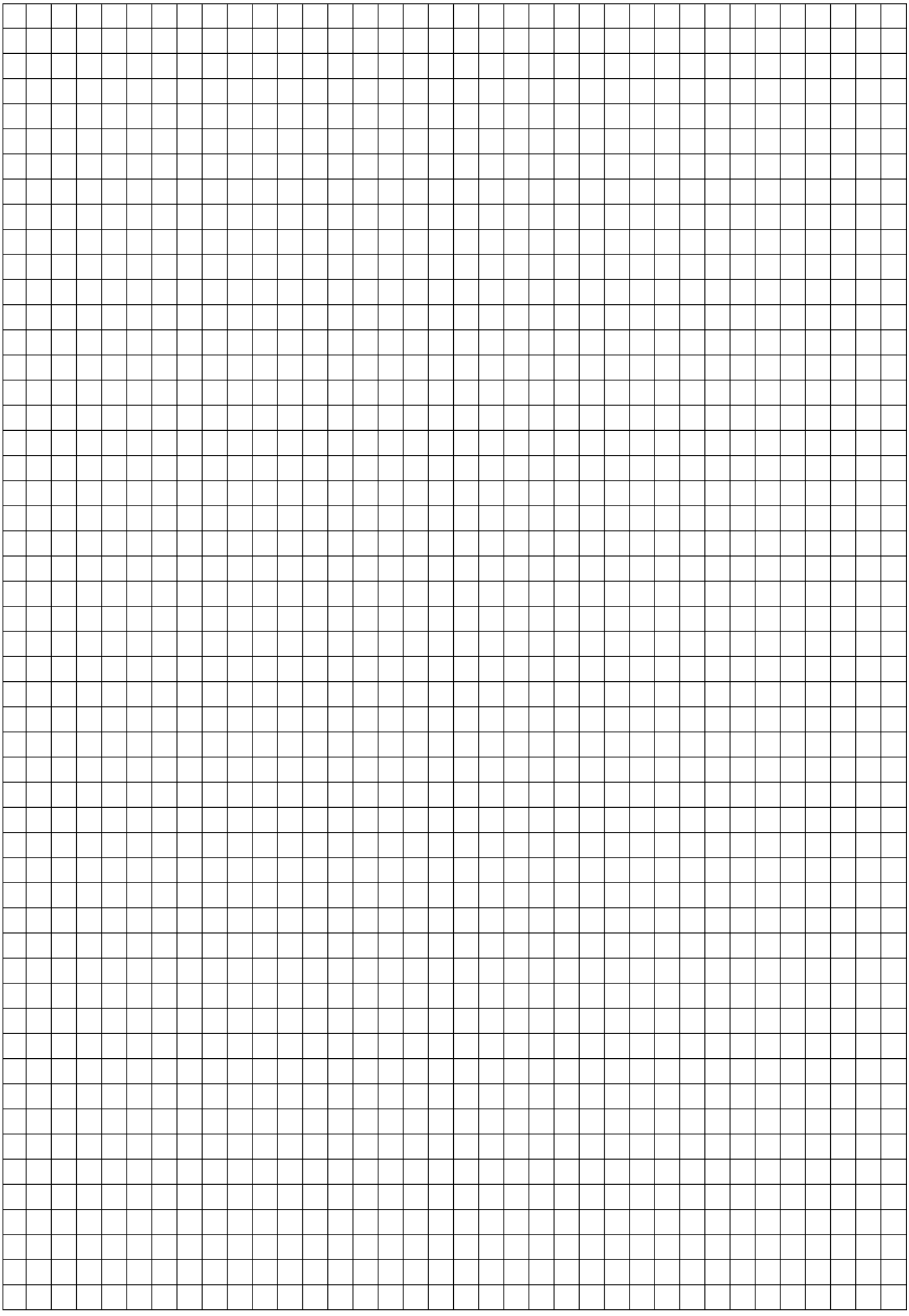
Scrap Graph Paper — this sheet will *not* be scored.



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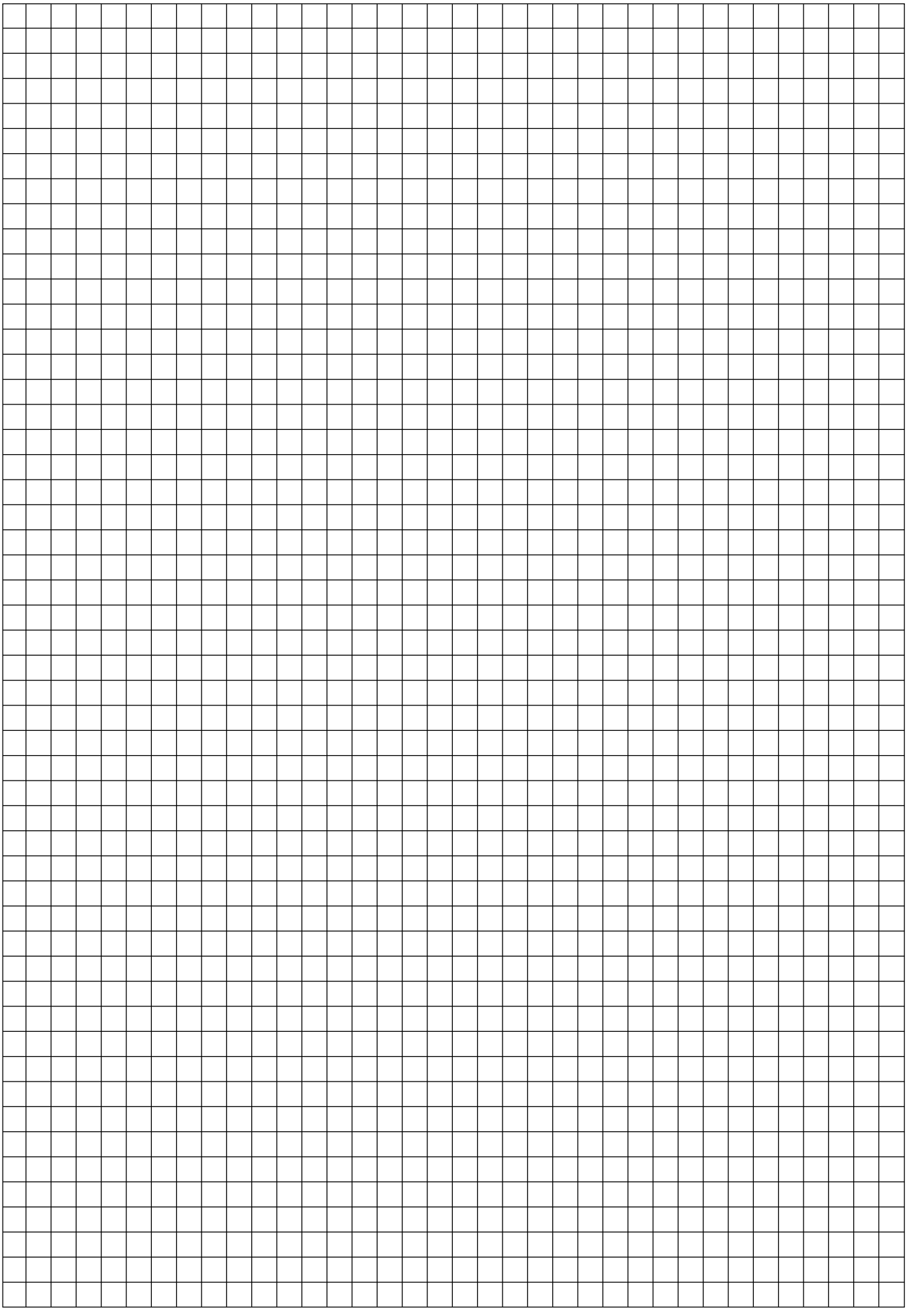

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High School Math Reference Sheet

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5280 feet
1 mile = 1760 yards
1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
1 pound = 16 ounces
1 pound = 0.454 kilogram
1 kilogram = 2.2 pounds
1 ton = 2000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 3.785 liters
1 liter = 0.264 gallon
1 liter = 1000 cubic centimeters

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d$ or $C = 2\pi r$
General Prisms	$V = Bh$
Cylinder	$V = \pi r^2 h$
Sphere	$V = \frac{4}{3}\pi r^3$
Cone	$V = \frac{1}{3}\pi r^2 h$
Pyramid	$V = \frac{1}{3}Bh$

Pythagorean Theorem	$a^2 + b^2 = c^2$
Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Arithmetic Sequence	$a_n = a_1 + (n - 1)d$
Geometric Sequence	$a_n = a_1 r^{n-1}$
Geometric Series	$S_n = \frac{a_1 - a_1 r^n}{1 - r}$ where $r \neq 1$
Radians	1 radian $= \frac{180}{\pi}$ degrees
Degrees	1 degree $= \frac{\pi}{180}$ radians
Exponential Growth/Decay	$A = A_0 e^{k(t - t_0)} + B_0$

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ALGEBRA I

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

Regents Examination in Algebra I – January 2023

Scoring Key: Part I (Multiple-Choice Questions)

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

Regents Examination in Algebra I – January 2023

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

Examination	Date	Question Number	Scoring Key	Question Type	Credit	Weight
Algebra I	January '23	**25**	-	CR	2	1
Algebra I	January '23	**26**	-	CR	2	1
Algebra I	January '23	**27**	-	CR	2	1
Algebra I	January '23	**28**	-	CR	2	1
Algebra I	January '23	**29**	-	CR	2	1
Algebra I	January '23	**30**	-	CR	2	1
Algebra I	January '23	**31**	-	CR	2	1
Algebra I	January '23	**32**	-	CR	2	1
Algebra I	January '23	**33**	-	CR	4	1
Algebra I	January '23	**34**	-	CR	4	1
Algebra I	January '23	**35**	-	CR	4	1
Algebra I	January '23	**36**	-	CR	4	1
Algebra I	January '23	**37**	-	CR	6	1

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

The chart for determining students' final examination scores for the **January 2023 Regents Examination in Algebra I** will be posted on the Department's web site at: https://www.nysedregents.org/algebraone/ on the day of the examination. Conversion charts provided for the previous administrations of the Regents Examination in Algebra I must NOT be used to determine students' final scores for this administration.

FOR TEACHERS ONLY

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

ALGEBRA I

Wednesday, January 25, 2023 — 1:15 to 4:15 p.m., only

RATING GUIDE

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. Check this web site at: http://www.nysed.gov/state-assessment/high-school-regents-examinations and select the link "Scoring Information" for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and several times throughout the Regents Examination period.

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

Note: The rubric definition for a 0-credit response has been updated based on feedback from New York State mathematics educators.

Mechanics of Rating

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

Do *not* attempt to correct the student's work by making insertions or changes of any kind. In scoring the constructed-response questions, use check marks to indicate student errors. Unless otherwise specified, mathematically correct variations in the answers will be allowed. Units need not be given when the wording of the questions allows such omissions.

Each student's answer paper is to be scored by a minimum of three mathematics teachers. No one teacher is to score more than approximately one-third of the constructed-response questions on a student's paper. Teachers may not score their own students' answer papers. On the student's separate answer sheet, for each question, record the number of credits earned and the teacher's assigned rater/scorer letter.

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

Raters should record the student's scores for all questions and the total raw score on the student's separate answer sheet. Then the student's total raw score should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: http://www.nysed.gov/state-assessment/high-school-regents-examinations on Wednesday, January 25, 2023. Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that, for each administration, the conversion chart provided for that administration be used to determine the student's final score. The student's scale score should be entered in the box provided on the student's separate answer sheet. The scale score is the student's final examination score.

General Rules for Applying Mathematics Rubrics

I. General Principles for Rating

The rubrics for the constructed-response questions on the Regents Examination in Algebra I are designed to provide a systematic, consistent method for awarding credit. The rubrics are not to be considered all-inclusive; it is impossible to anticipate all the different methods that students might use to solve a given problem. Each response must be rated carefully using the teacher's professional judgment and knowledge of mathematics; all calculations must be checked. The specific rubrics for each question must be applied consistently to all responses. In cases that are not specifically addressed in the rubrics, raters must follow the general rating guidelines in the publication *Information Booklet for Scoring the Regents Examination in Algebra I*, use their own professional judgment, confer with other mathematics teachers, and/or contact the State Education Department for guidance. During each Regents Examination administration period, rating questions may be referred directly to the Education Department. The contact numbers are sent to all schools before each administration period.

II. Full-Credit Responses

A full-credit response provides a complete and correct answer to all parts of the question. Sufficient work is shown to enable the rater to determine how the student arrived at the correct answer.

When the rubric for the full-credit response includes one or more examples of an acceptable method for solving the question (usually introduced by the phrase "such as"), it does not mean that there are no additional acceptable methods of arriving at the correct answer. Unless otherwise specified, mathematically correct alternative solutions should be awarded credit. The only exceptions are those questions that specify the type of solution that must be used; e.g., an algebraic solution or a graphic solution. A correct solution using a method other than the one specified is awarded half the credit of a correct solution using the specified method.

III. Appropriate Work

Full-Credit Responses: The directions in the examination booklet for all the constructed-response questions state: "Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc." The student has the responsibility of providing the correct answer ***and*** showing how that answer was obtained. The student must "construct" the response; the teacher should not have to search through a group of seemingly random calculations scribbled on the student paper to ascertain what method the student may have used.

Responses With Errors: Rubrics that state "Appropriate work is shown, but…" are intended to be used with solutions that show an essentially complete response to the question but contain certain types of errors, whether computational, rounding, graphing, or conceptual. If the response is incomplete; i.e., an equation is written but not solved or an equation is solved but not all of the parts of the question are answered, appropriate work has ***not*** been shown. Other rubrics address incomplete responses.

IV. Multiple Errors

Computational Errors, Graphing Errors, and Rounding Errors: Each of these types of errors results in a 1-credit deduction. Any combination of two of these types of errors results in a 2-credit deduction. No more than 2 credits should be deducted for such mechanical errors in a 4-credit question and no more than 3 credits should be deducted in a 6-credit question. The teacher must carefully review the student's work to determine what errors were made and what type of errors they were.

Conceptual Errors: A conceptual error involves a more serious lack of knowledge or procedure. Examples of conceptual errors include using the incorrect formula for the area of a figure, choosing the incorrect trigonometric function, or multiplying the exponents instead of adding them when multiplying terms with exponents.

If a response shows repeated occurrences of the same conceptual error, the student should not be penalized twice. If the same conceptual error is repeated in responses to other questions, credit should be deducted in each response.

For 4- and 6-credit questions, if a response shows one conceptual error and one computational, graphing, or rounding error, the teacher must award credit that takes into account both errors. Refer to the rubric for specific scoring guidelines.

Part II

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

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

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

or

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

[0] 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]** 38, and correct work is shown.

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

or

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

or

[1] $\frac{46}{122}$ is stated, but no further correct work is shown.

or

[1] 38, but no work is shown.

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

(27) **[2]** $x < 27$, and correct algebraic work is shown.

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

or

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

or

[1] $x < 27$, but a method other than algebraic is used.

or

[1] $x < 27$, but no work is shown.

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

(28) **[2]** 4, and correct work is shown.

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

or

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

or

[1] 4, but no work is shown.

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

(29) **[2]** Two correct explanations are written.

[1] One conceptual error is made.

or

[1] One correct explanation is written.

or

[1] Correct work is shown to find $14\sqrt{3}$ and 99, but the explanation is missing or incorrect.

[0] $14\sqrt{3}$ and 99 are stated.

or

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

(30) **[2]** 3.73 and 0.27, and correct work using the quadratic formula is shown.

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

or

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

or

[1] Appropriate work is shown to find $\frac{4 \pm \sqrt{12}}{2}$, but no further correct work is shown.

or

[1] 3.73 and 0.27, but a method other than the quadratic formula is used.

or

[1] 3.73 and 0.27, 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.

(31) **[2]** $x(2x + 7)(2x - 7)$, and correct work is shown.

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

or

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

or

[1] $x(2x + 7)(2x - 7)$, 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) **[2]** A correct graph is drawn.

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

or

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

or

[1] Either $g(x) = |x + 3|$ or $g(x) = x^2 + 1$ is graphed correctly over its 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.

Part III

For each question, use the specific criteria to award a maximum of 4 credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(33) **[4]** 20 to 30, 10,000, -600, and a correct explanation in context is written.

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

[2] Only 20 to 30 and 10,000 are stated, but no further correct work is shown.

or

[2] -600, and a correct explanation in context is written, but no further correct work is shown.

[1] Either 20 to 30, 10,000, or -600 is stated, but no further correct work is shown.

or

[1] An appropriate explanation in context 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.

(34) **[4]** $y = -2.81x + 97.55$, -0.97, 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 the expression $-2.81x + 97.55$ is written.

[2] A correct linear regression equation is written, but no further correct work is shown.

[1] -0.97, 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.

(35) **[4]** Either $2(3w - 5) + 2w = 90$ or both $l = 3w - 5$ and $2l + 2w = 90$, $w = 12.5$ and $l = 32.5$, and correct algebraic work is shown.

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

or

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

or

[3] One equation of the system is incorrect, but the system is solved appropriately.

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

or

[2] Either a correct system of equations or a correct equation in one variable is written, but no further correct work is shown.

or

[2] $w = 12.5$ and $l = 32.5$, but a method other than algebraic is used.

[1] $l = 3w - 5$ or $2l + 2w = 90$ is written, but no further correct work is shown.

or

[1] $w = 12.5$ and $l = 32.5$, 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.

(36) **[4]** Both inequalities are graphed correctly, and at least one is labeled, a correct point in the solution is stated, and a correct justification is given.

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

or

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

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

or

[2] A correct point and justification are 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] Both equations 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.

Part IV

For this question, use the specific criteria to award a maximum of 6 credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(37) **[6]** $y = 10x$ and $y = 6x + 30$ are written and graphed correctly, and at least one is labeled, 7.5, and a correct justification is given.

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

or

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

or

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

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

or

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

or

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

[3] Correct equations are written and 7.5 is stated, but no further correct work is shown.

[2] Correct equations are written, but no further correct work is shown.

or

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

[1] One equation is written correctly, 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 2023

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

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

Regents Examination in Algebra I

January 2023

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

The *Chart for Determining the Final Examination Score for the January 2023 Regents Examination in Algebra I* will be posted on the Department's web site at: http://www.nysed.gov/state-assessment/high-school-regents-examinations by Wednesday, January 25, 2023. Conversion charts provided for previous administrations of the Regents Examination in Algebra I must NOT be used to determine students' final scores for this administration.

Online Submission of Teacher Evaluations of the Test to the Department

Suggestions and feedback from teachers provide an important contribution to the test development process. The Department provides an online evaluation form for State assessments. It contains spaces for teachers to respond to several specific questions and to make suggestions. Instructions for completing the evaluation form are as follows:

1. Go to http://www.nysed.gov/state-assessment/teacher-feedback-state-assessments.

2. Select the test title.

3. Complete the required demographic fields.

4. Complete each evaluation question and provide comments in the space provided.

5. Click the SUBMIT button at the bottom of the page to submit the completed form.

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

ALGEBRA I

Wednesday, January 25, 2023 — 1:15 to 4:15 p.m.,

MODEL RESPONSE SET

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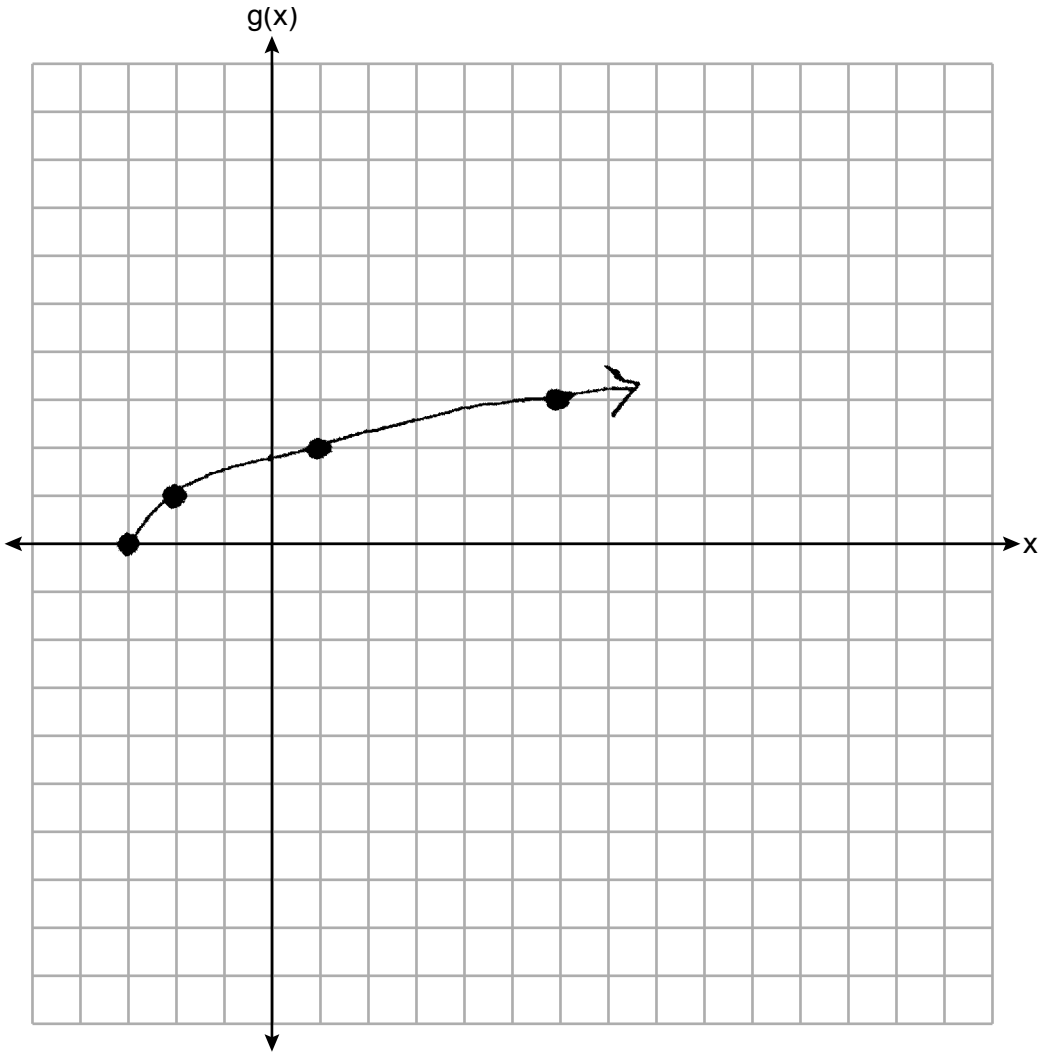
Question 25

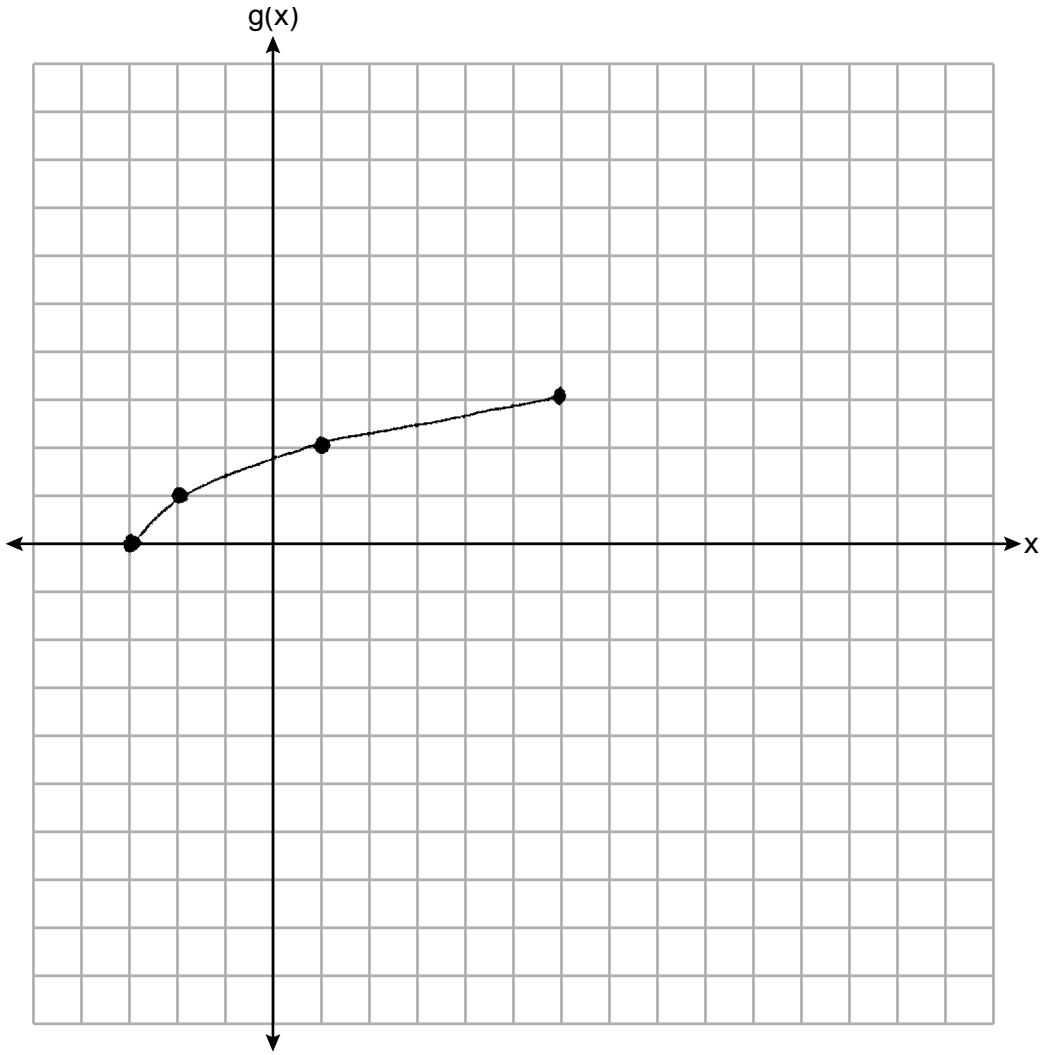
25 Graph the function $g(x) = \sqrt{x+3}$ on the set of axes below.



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

Question 25

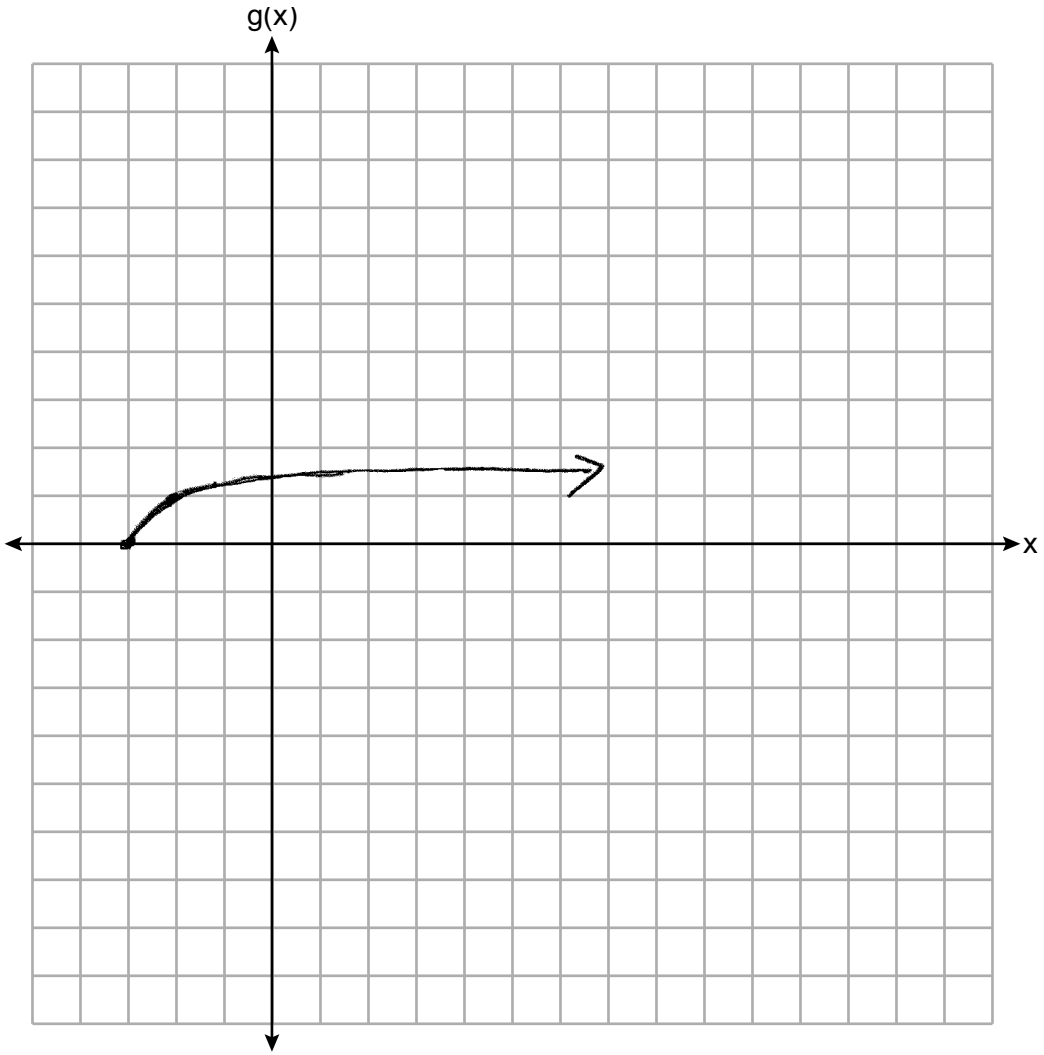
25 Graph the function $g(x) = \sqrt{x+3}$ on the set of axes below.



Score 1: The student graphed the equation over the interval $-3 \leq x \leq 6$.

Question 25

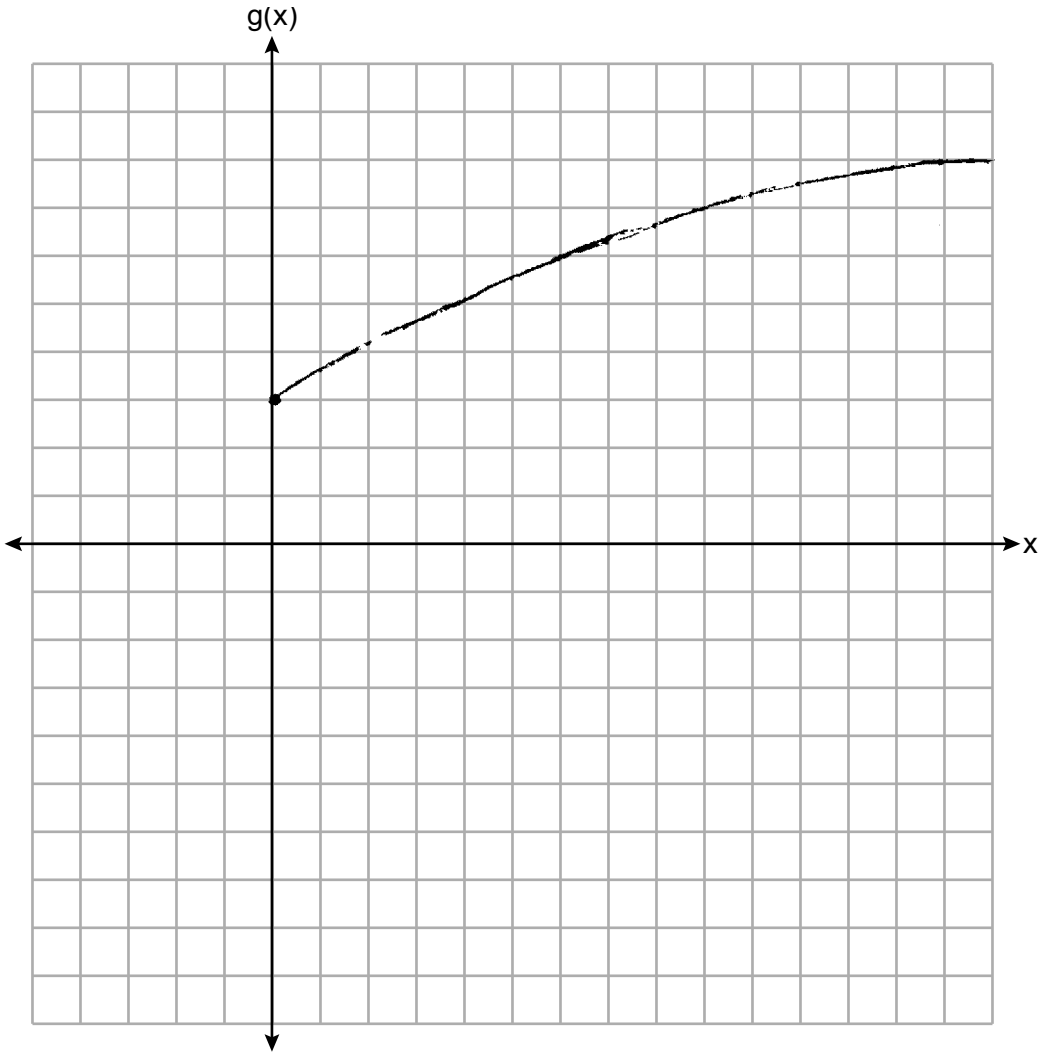
25 Graph the function $g(x) = \sqrt{x+3}$ on the set of axes below.



Score 1: The student only graphed two points correctly.

Question 25

25 Graph the function $g(x) = \sqrt{x+3}$ on the set of axes below.



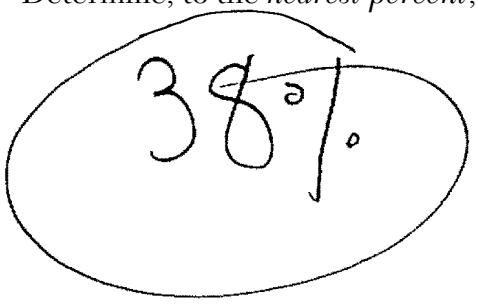
Score 0: The student attempted to graph $g(x) = \sqrt{x} + 3$, but made graphing errors.

Question 26

26 The sixth-grade classes at West Road Elementary School were asked to vote on the location of their class trip. The results are shown in the table below.

	Playland	Splashdown	Fun Central
Boys	38	53	25
Girls	39	46	37

Determine, to the *nearest percent*, the percentage of girls who voted for Splashdown.



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

Question 26

26 The sixth-grade classes at West Road Elementary School were asked to vote on the location of their class trip. The results are shown in the table below.

	Playland	Splashdown	Fun Central
Boys	38	53	25
Girls	39	46	37

Determine, to the *nearest percent*, the percentage of girls who voted for Splashdown.

$$\begin{array}{r} 46 \\ +\ 37 \\ \hline 39 \\ \hline 122 \end{array}$$

$$\frac{46}{122}$$

Score 1: The student expressed the answer as a fraction instead of a percentage.

Question 26

26 The sixth-grade classes at West Road Elementary School were asked to vote on the location of their class trip. The results are shown in the table below.

	Playland	Splashdown	Fun Central
Boys	38	53	25
Girls	39	46	37

Determine, to the *nearest percent*, the percentage of girls who voted for Splashdown.

$38+39+53+46+25+37=238$

$\frac{46}{238} \times \frac{x}{100}$

$\frac{238x}{238} = \frac{4600}{238}$

$x \approx 19.$

19 % of the girls voted for Splashdown

Score 1: The student gave a percent for girls who chose Splashdown over the total number of students.

Question 26

26 The sixth-grade classes at West Road Elementary School were asked to vote on the location of their class trip. The results are shown in the table below.

	Playland	Splashdown	Fun Central
Boys	38	53	25
Girls	39	46	37

Determine, to the *nearest percent*, the percentage of girls who voted for Splashdown.

$38 + 39 + 53 + 46 + 25 + 37 = 238$

$\frac{46}{238} = .1932 \approx 19.32 \approx 19.3\%$

Score 0: The student used the wrong denominator and made a rounding error.

Question 27

27 Solve the inequality $-\frac{2}{3}x + 6 > -12$ algebraically for x.

$-\frac{2}{3}x + 6 > -12$

$-6 \quad -6$

$-\frac{2}{3}x > -18$

$\frac{-\frac{2}{3}x}{-\frac{2}{3}} \quad \frac{-18}{-\frac{2}{3}}$

$x < 27$

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

Question 27

27 Solve the inequality $-\frac{2}{3}x + 6 > -12$ algebraically for x.

$-\frac{2}{3}x + 6 > -12$

$-6 \quad -6$

$-\frac{2}{3}x > -18$

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

$x > 27$

Score 1: The student did not use the correct inequality symbol.

Question 27

27 Solve the inequality $-\frac{2}{3}x + 6 > -12$ algebraically for x.

$-6 \quad -6$

$-\frac{2}{3}x > -18$

$\cdot 3 \qquad \cdot 3$

$\frac{-2x}{-2} > \frac{54}{-2}$

$1x < -27$

Score 1: The student made one computational error.

Question 27

27 Solve the inequality $-\frac{2}{3}x + 6 > -12$ algebraically for x.

$-\frac{2}{3}x + 6 > -12$

$-\frac{2}{3}x > -18$

$x < 26.87$

Score 1: The student divided by -0.67 instead of $-\frac{2}{3}$.

Question 27

27 Solve the inequality $-\frac{2}{3}x + 6 > -12$ algebraically for x.

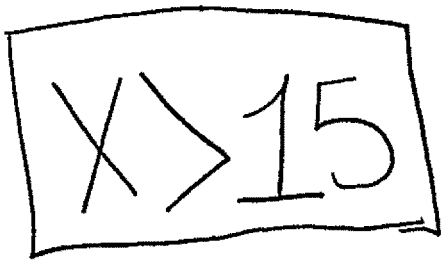
$-\frac{2}{3}x + 6 > -12$ $\times 3$

$-2x + 18 > -12$

$-18 \quad -18$

$\frac{-2x}{-2} > \frac{-30}{-2}$

$x > 15$



Score 0: The student did not multiply both sides of the inequality by 3 and did not have the correct inequality symbol.

Question 27

27 Solve the inequality $-\frac{2}{3}x + 6 > -12$ algebraically for x.

$\frac{-2}{3}x + 6 > -12$

$-6 \quad -6$

$-\frac{2}{3}x > -18$

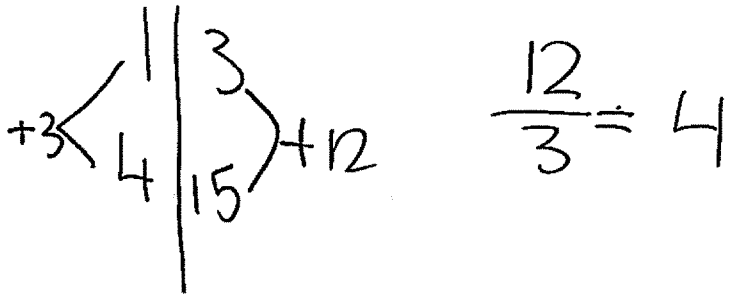
$\frac{-2}{3} \quad \frac{-2}{3}$

$x = 3$

Score 0: The student made multiple errors.

Question 28

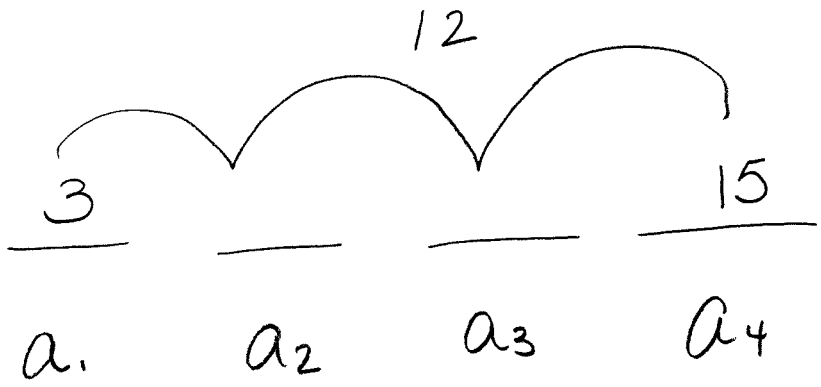
28 Determine the common difference of the arithmetic sequence in which $a_1 = 3$ and $a_4 = 15$.



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

Question 28

28 Determine the common difference of the arithmetic sequence in which $a_1 = 3$ and $a_4 = 15$.



$\frac{12}{3} = 4$

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

Question 28

28 Determine the common difference of the arithmetic sequence in which $a_1 = 3$ and $a_4 = 15$.

$a_1 = 3 \quad a_n = a_{n-1} + 4$

4

Score 1: The student stated 4, but did not show work.

Question 28

28 Determine the common difference of the arithmetic sequence in which $a_1 = 3$ and $a_4 = 15$.

$$an = 3 + (15-1)(d)$$
$$= 17$$

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

Question 29

29 Given: $A = \sqrt{363}$ and $B = \sqrt{27}$

Explain why $A + B$ is irrational.

A + B is irrational because $\sqrt{363} \approx 19.052558...$ and $\sqrt{27} \approx 5.1961524...$ an irrational number added to an irrational number will always be irrational. Both terms neither terminate, nor repeat.

Explain why $A \bullet B$ is rational.

AB is rational because $\sqrt{363} \cdot \sqrt{27} = 99$, which is a whole number; all whole numbers are rational numbers

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

Question 29

29 Given: $A = \sqrt{363}$ and $B = \sqrt{27}$

Explain why $A + B$ is irrational.

because irrational + irrational = irrational

Explain why $A \cdot B$ is rational. when you multiply $\sqrt{363} \times \sqrt{27}$ you get 99 which is a rational number

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

Question 29

29 Given: $A = \sqrt{363}$ and $B = \sqrt{27}$

Explain why $A + B$ is irrational.

The sum is a non-repeating and non-terminating decimal.

Explain why $A \bullet B$ is rational.

Score 1: The student gave only one correct explanation.

Question 29

29 Given: $A = \sqrt{363}$ and $B = \sqrt{27}$

Explain why $A + B$ is irrational.

A+B is Irrational because when you add them it doesn't give you a whole number it gives you a decimal.

Explain why $A \bullet B$ is rational.

$\sqrt{363}\sqrt{27} = 99$

AB is rational because if you solve AB it gives you a whole number.

Score 1: The student gave a correct explanation for $A \bullet B$ and an incomplete explanation for $A + B$.

Question 29

29 Given: $A = \sqrt{363}$ and $B = \sqrt{27}$

Explain why $A + B$ is irrational.

It's not rational because square roots aren't rational.

Explain why $A \cdot B$ is rational.

AB is ration because the answer is a decimal. And decimals are rational.

Score 0: The student did not write correct explanations.

Question 30

30 Use the quadratic formula to solve $x^2 - 4x + 1 = 0$ for x.

Round the solutions to the *nearest hundredth*.

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

$a = 1$

$b = -4$

$c = 1$

$$\frac{4 \pm \sqrt{16 - 4(1)(1)}}{2}$$

$$\frac{4 \pm \sqrt{16 - 4}}{2}$$

$$\frac{4 + 3.46}{2}$$

3.73 and

$$\frac{4 - 3.46}{2}$$

0.27

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

Question 30

30 Use the quadratic formula to solve $x^2 - 4x + 1 = 0$ for x.

Round the solutions to the *nearest hundredth*.

$x^2 - 4x + 1 = 0$

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

$x = 3.73$

$x = 0.27$

$\{0.27, 3.73\}$

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

Question 30

30 Use the quadratic formula to solve $x^2 - 4x + 1 = 0$ for x.

Round the solutions to the *nearest hundredth*.

a=1 b=-4 c=1

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

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

$$X = \frac{4 \pm \sqrt{-20}}{2}$$

no real roots

Score 1: The student made one computational error.

Question 30

30 Use the quadratic formula to solve $x^2 - 4x + 1 = 0$ for x.

Round the solutions to the *nearest hundredth*.

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

$$\frac{4 \pm \sqrt{16 - 4}}{2}$$

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

$$\frac{\sqrt{4} \cdot \sqrt{3}}{2}$$

$$2 \pm 2\sqrt{3}$$

$\{5.46, -1.46\}$

Score 1: The student found $\frac{4 \pm \sqrt{12}}{2}$, but no further correct work was shown.

Question 30

30 Use the quadratic formula to solve $x^2 - 4x + 1 = 0$ for x.

Round the solutions to the *nearest hundredth*.

$x^2 - 4x + 1 = 0$

$x^2 - 4x + 4 - 4 + 1 = 0$

$(x - 2)^2 - 3 = 0$

$(x - 2)^2 = 3$

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

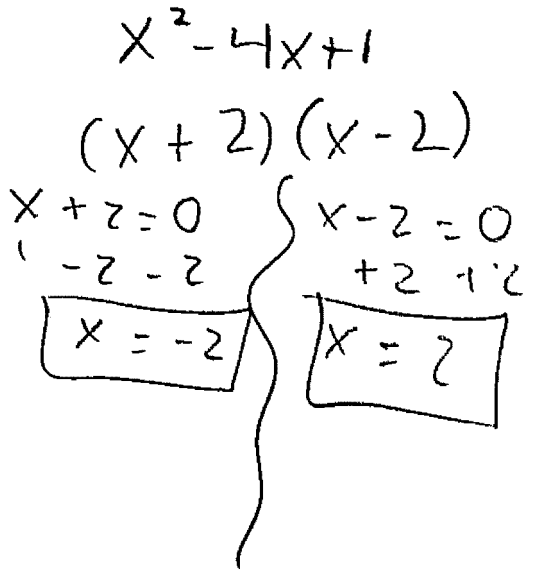
$x = 2 \pm \sqrt{3}$

Score 0: The student did not use the quadratic formula and did not write the solutions as decimals.

Question 30

30 Use the quadratic formula to solve $x^2 - 4x + 1 = 0$ for x.

Round the solutions to the *nearest hundredth*.



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

Question 31

31 Factor completely:

$$4x^3 - 49x$$

$X(4x^2 - 49)$

$X(2x - 7)(2x + 7)$

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

Question 31

31 Factor completely:

$$4x^3 - 49x$$

$x(4x^2-49)$

Score 1: The student did not factor the expression completely.

Question 31

31 Factor completely:

$4x^3 - 49x$

$4x^3 - 49x$

$x(4x^2 - 49)$ GCF

$x(x + 7)(x - 7)$

check: $x(x+7)(x-7)$

$x^2 + 7x - 7x - 49$

$x(x^2 - 49)$

$x^3 - 49x$

Score 1: The student found $x(4x^2 - 49)$, but no further correct work was shown.

Question 31

31 Factor completely:

$$4x^3 - 49x$$

$4(x^3 - 12.25x)$

$4(x^2 + 6.125)(x + 6.125)$

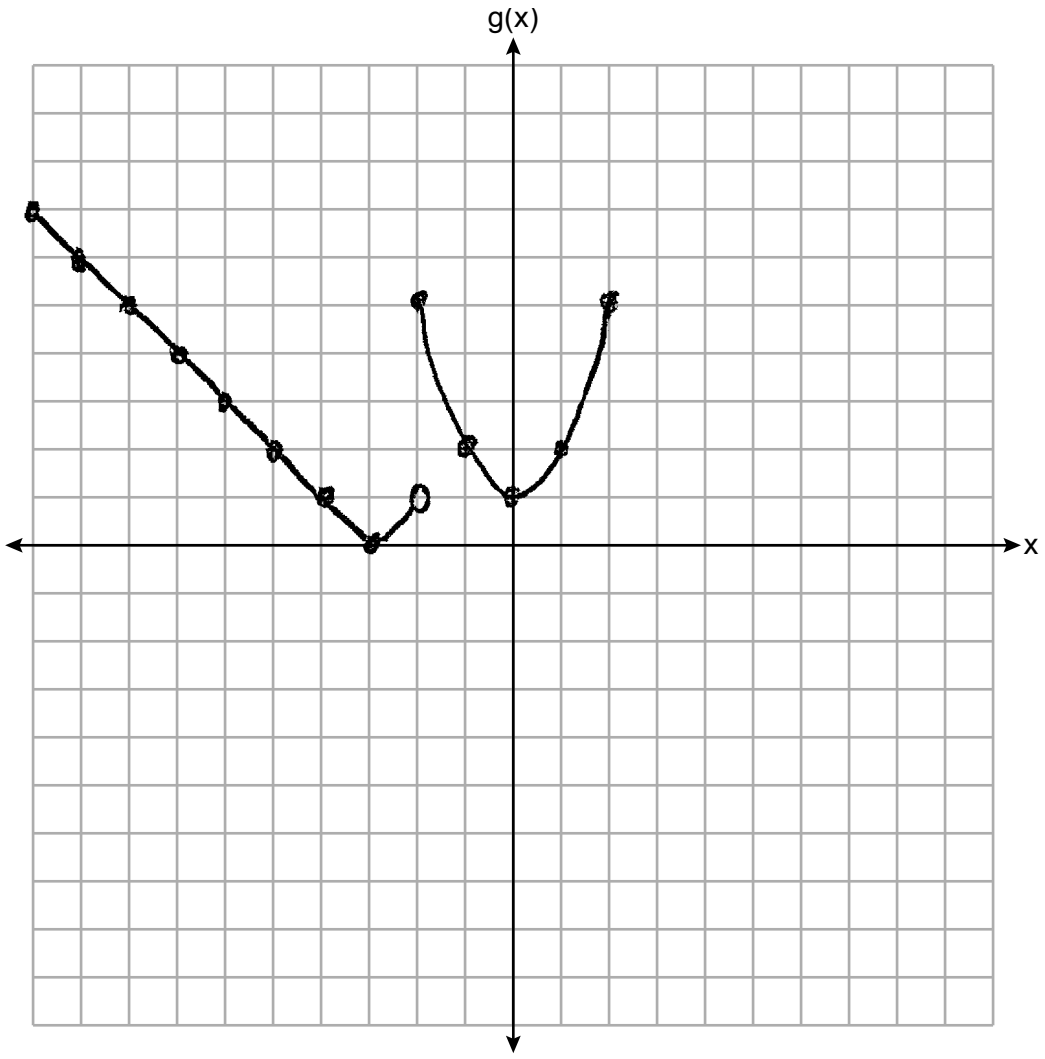
Score 0: The student gave an incorrect response.

Question 32

32 The function g is defined as

$$g(x) = \begin{cases} |x + 3|, & x < -2 \\ x^2 + 1, & -2 \leq x \leq 2 \end{cases}$$

On the set of axes below, graph $g(x)$.



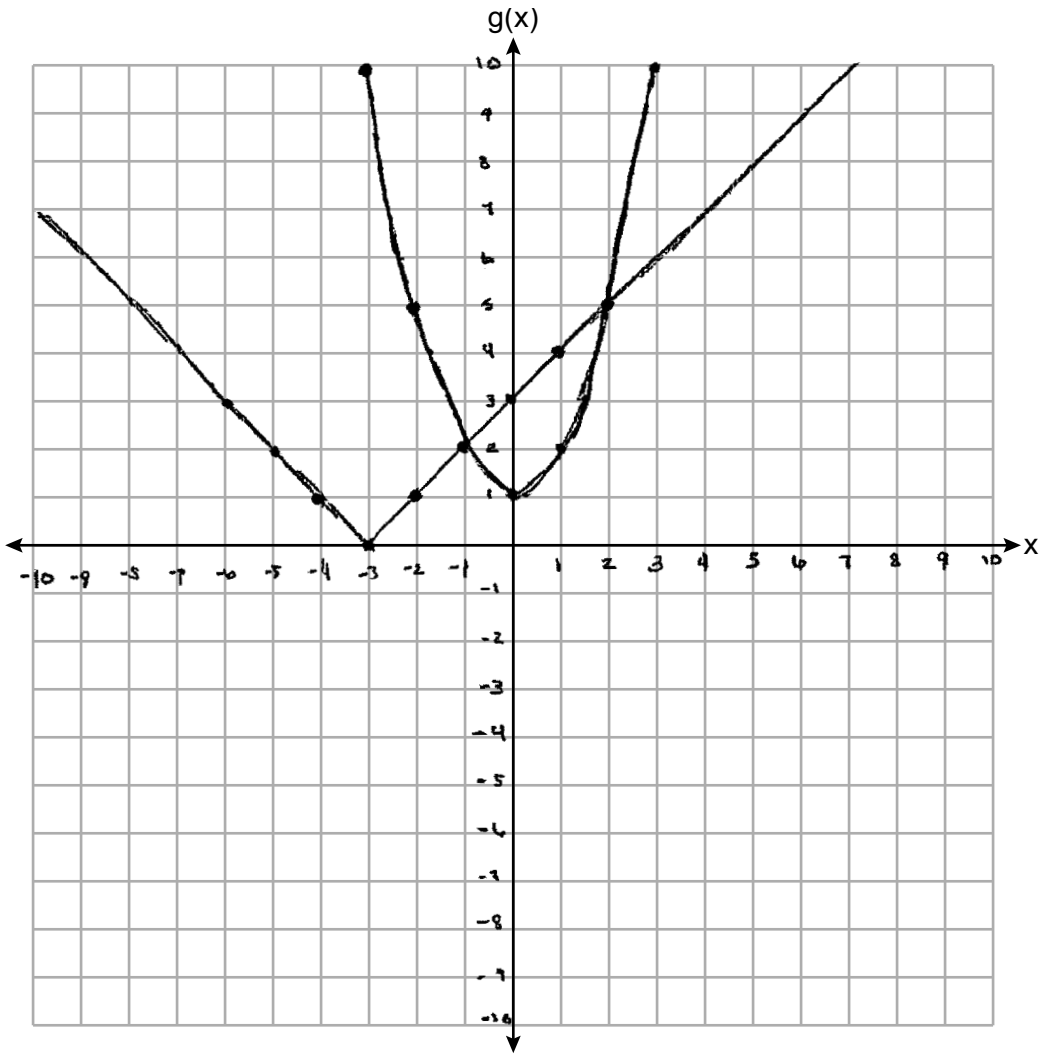
Score 2: The student gave a complete and correct response.

Question 32

32 The function g is defined as

$$g(x) = \begin{cases} |x + 3|, & x < -2 \\ x^2 + 1, & -2 \leq x \leq 2 \end{cases}$$

On the set of axes below, graph $g(x)$.



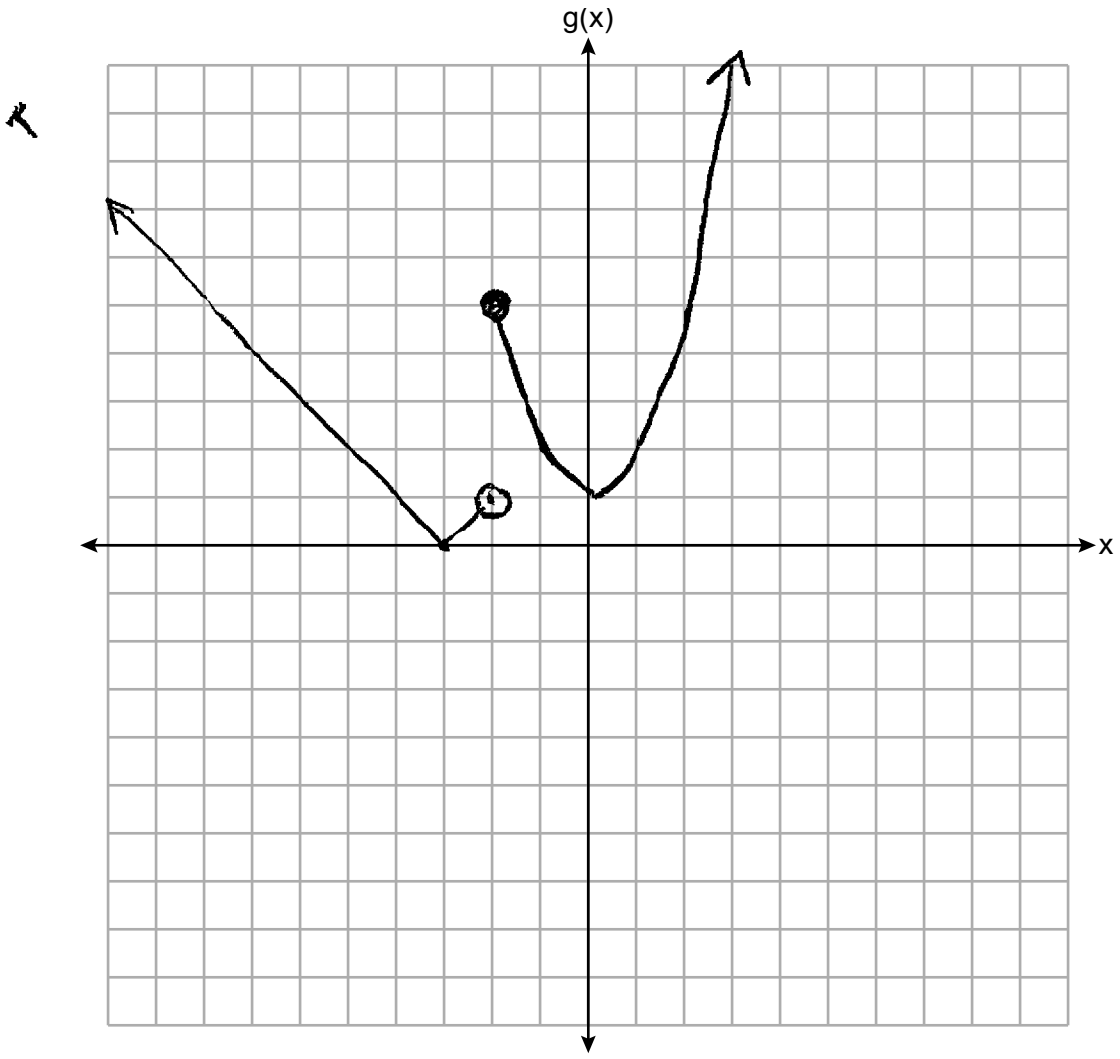
Score 1: The student graphed both equations, but did not use the given domains.

Question 32

32 The function g is defined as

$$g(x) = \begin{cases} |x + 3|, & x < -2 \\ x^2 + 1, & -2 \leq x \leq 2 \end{cases}$$

On the set of axes below, graph $g(x)$.



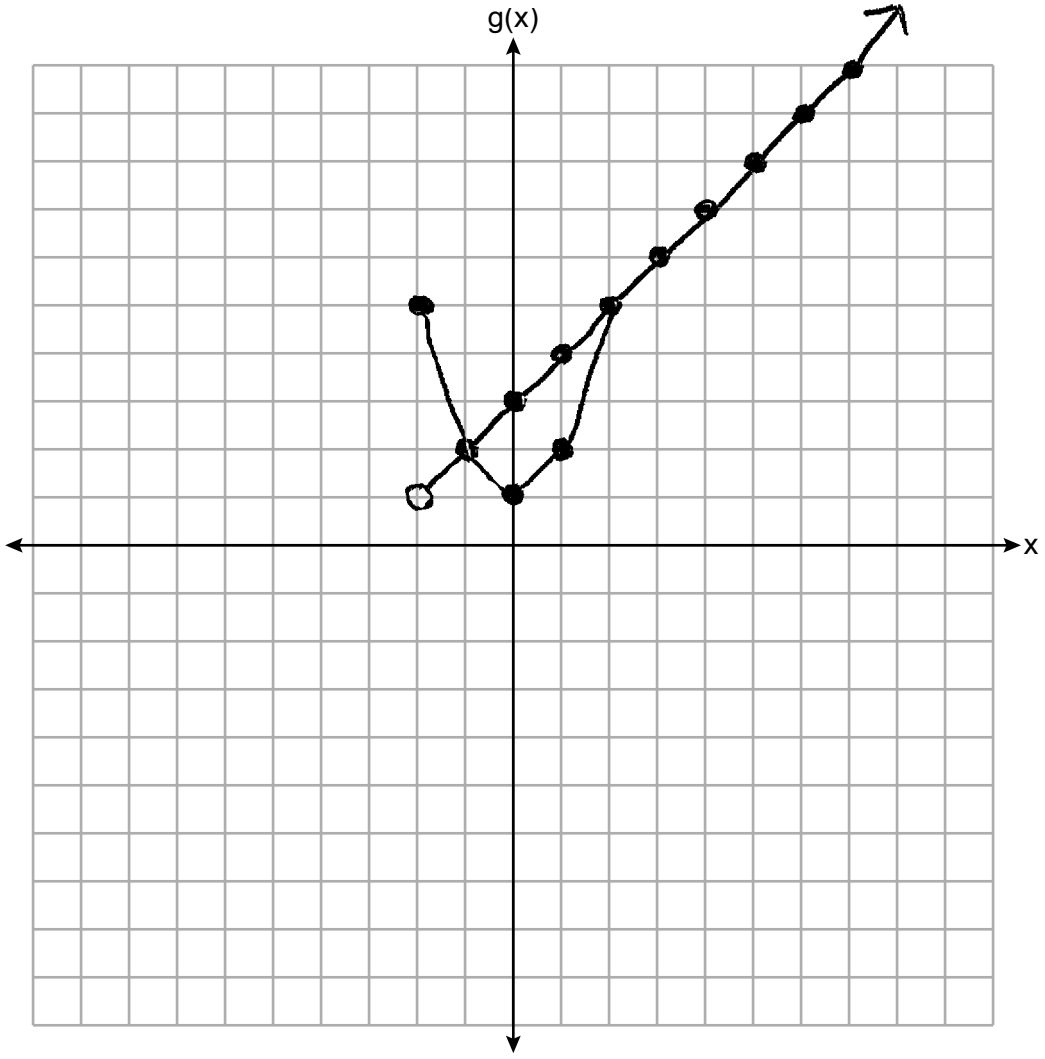
Score 1: The student made one graphing error.

Question 32

32 The function g is defined as

$$g(x) = \begin{cases} |x + 3|, & x < -2 \\ x^2 + 1, & -2 \leq x \leq 2 \end{cases}$$

On the set of axes below, graph $g(x)$.



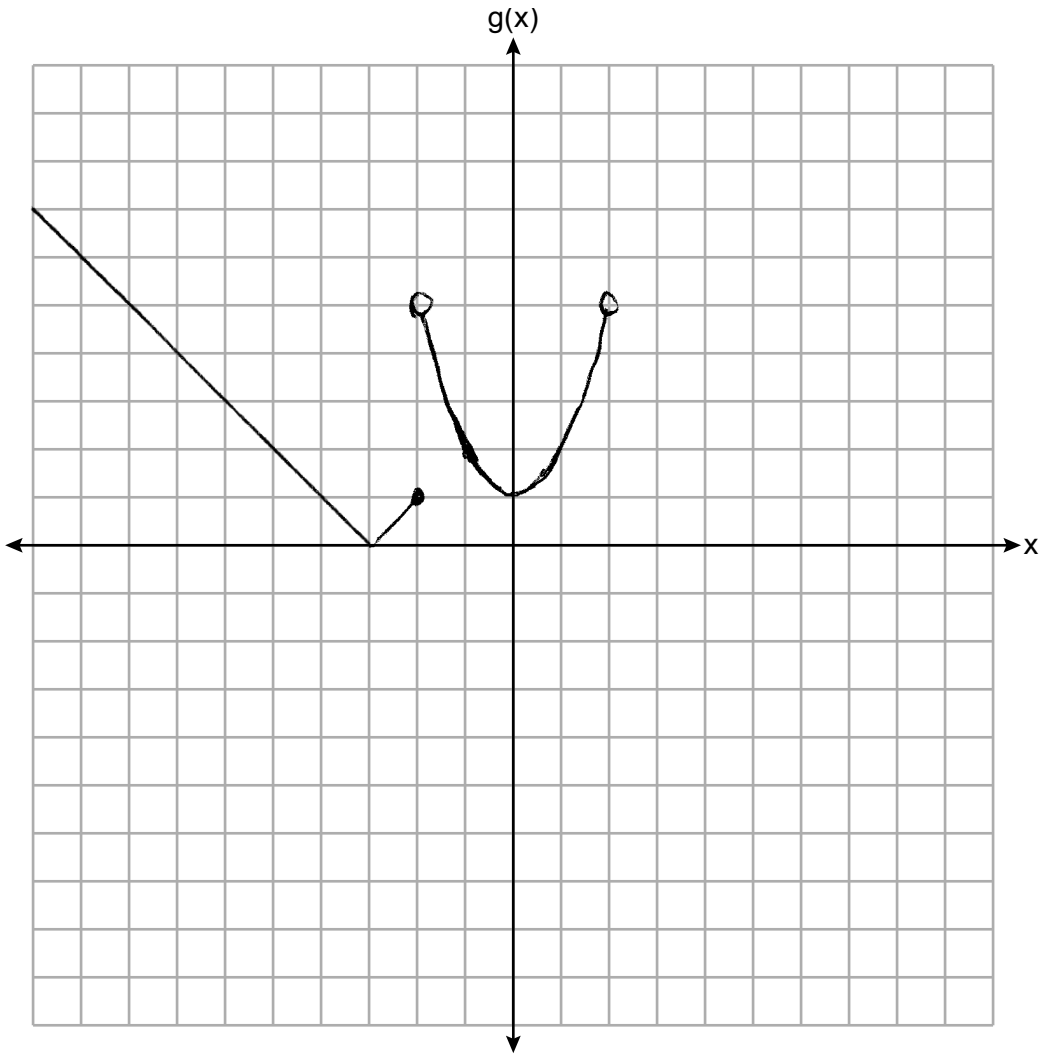
Score 1: The student graphed $g(x) = x^2 + 1$ over its given domain, but no further correct work was shown.

Question 32

32 The function g is defined as

$$g(x) = \begin{cases} |x + 3|, & x < -2 \\ x^2 + 1, & -2 \leq x \leq 2 \end{cases}$$

On the set of axes below, graph $g(x)$.



Score 1: The student graphed the end points of both functions incorrectly.

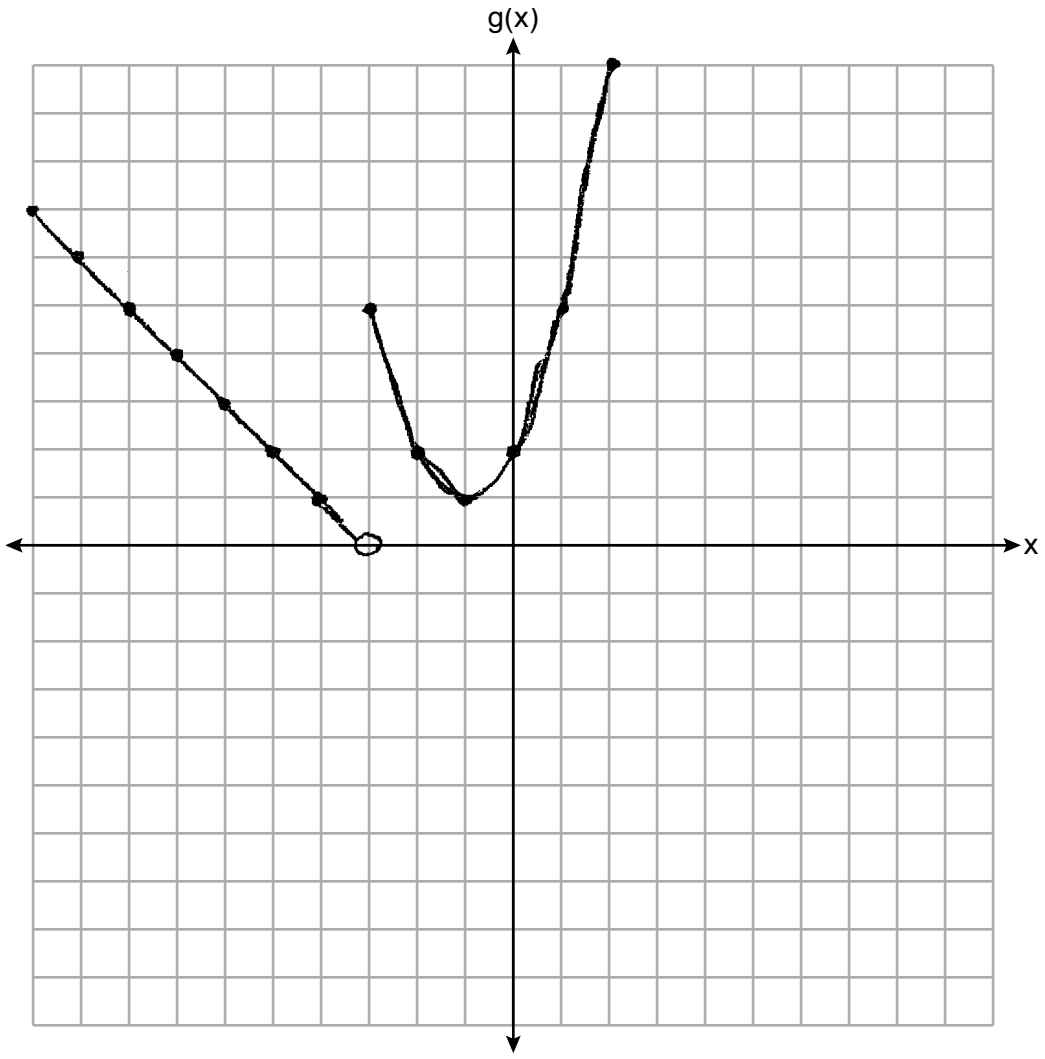
Question 32

32 The function g is defined as

$$g(x) = \begin{cases} |x + 3|, & x < -2 \\ x^2 + 1, & -2 \leq x \leq 2 \end{cases}$$

On the set of axes below, graph $g(x)$.

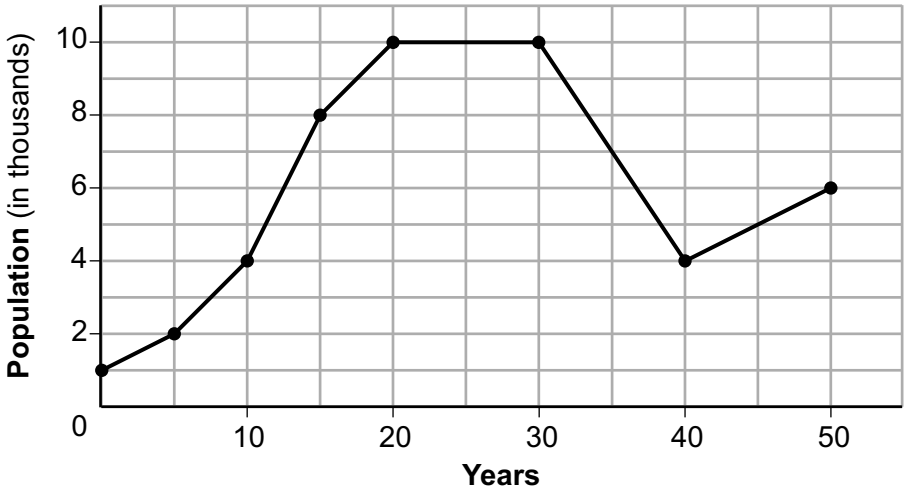
↑ Piecewise function.



Score 0: The student made multiple graphing errors.

Question 33

33 Anessa is studying the changes in population in a town. The graph below shows the population over 50 years.



State the entire interval during which the population remained constant.

20-30 Years

State the maximum population of the town over the 50-year period.

10,000

Determine the average rate of change from year 30 to year 40.

-600

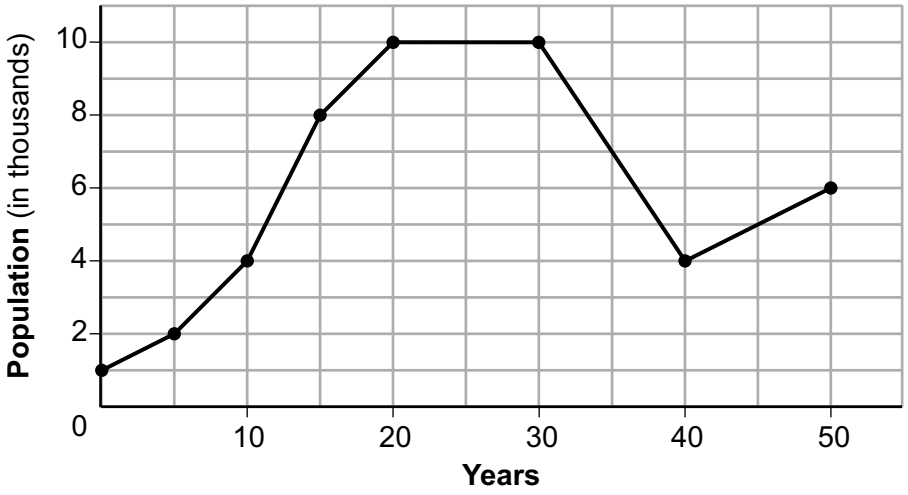
Explain what your average rate of change means from year 30 to year 40 in the context of the problem.

The population decreases by 600 people every 1 year.

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

Question 33

33 Anessa is studying the changes in population in a town. The graph below shows the population over 50 years.



State the entire interval during which the population remained constant.

20 - 30 years.

State the maximum population of the town over the 50-year period.

10,000

Determine the average rate of change from year 30 to year 40.

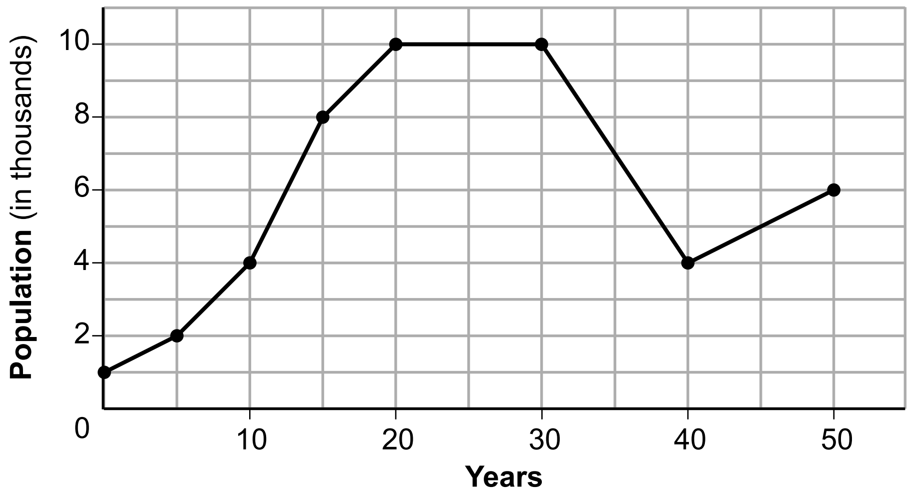
$\frac{4{,}000 - 10{,}000}{10}$ $m = -600$

Explain what your average rate of change means from year 30 to year 40 in the context of the problem.

the change of the population in years

Score 3: The student wrote an incomplete explanation.

33 Anessa is studying the changes in population in a town. The graph below shows the population over 50 years.



State the entire interval during which the population remained constant.

[20,30]

State the maximum population of the town over the 50-year period.

10,000

Determine the average rate of change from year 30 to year 40.

$5000 - 10{,}000 = \frac{-5000}{10} = -500$

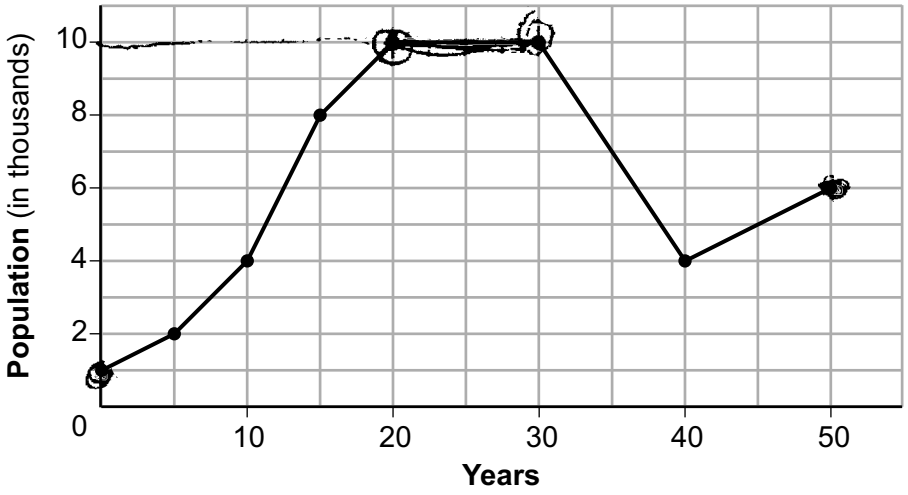
Explain what your average rate of change means from year 30 to year 40 in the context of the problem.

Each year between year 30 to year 40 the population went down by 500

Score 3: The student found an incorrect rate of change.

Question 33

33 Anessa is studying the changes in population in a town. The graph below shows the population over 50 years.



State the entire interval during which the population remained constant.

The interval during when the population was constant was between the years of 20 to 30.

State the maximum population of the town over the 50-year period.

The maximum population was 10,000 people.

Determine the average rate of change from year 30 to year 40.

The average rate of change would be 12.

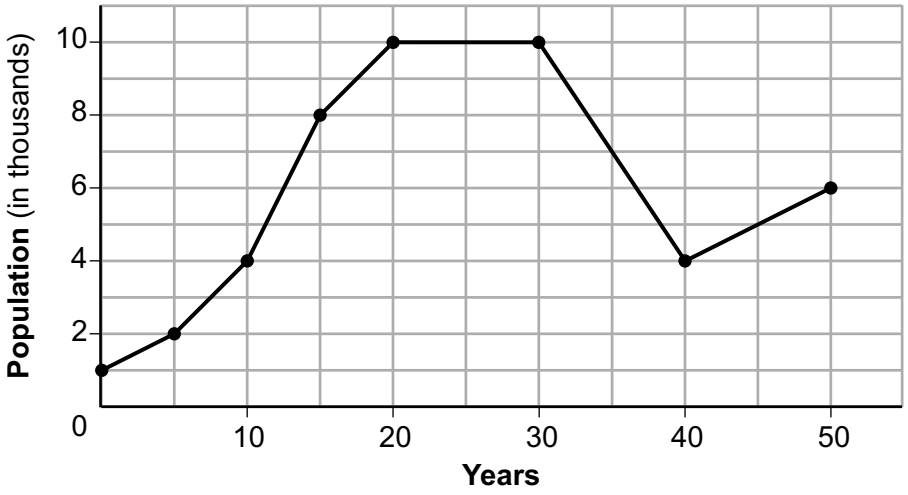
Explain what your average rate of change means from year 30 to year 40 in the context of the problem.

This is explaining/showing the increase or decrease that the town is having of their population over time.

Score 2: The student stated the correct interval and maximum population, but no further correct work was shown.

Question 33

33 Anessa is studying the changes in population in a town. The graph below shows the population over 50 years.



State the entire interval during which the population remained constant.

20 ≤ x ≤ 30

State the maximum population of the town over the 50-year period.

10,000 people

Determine the average rate of change from year 30 to year 40.

$\frac{(30,10)}{(40,4)}\ \frac{10-4}{30-40} = \frac{6}{-10} = -0.6 = \frac{-3}{5}$

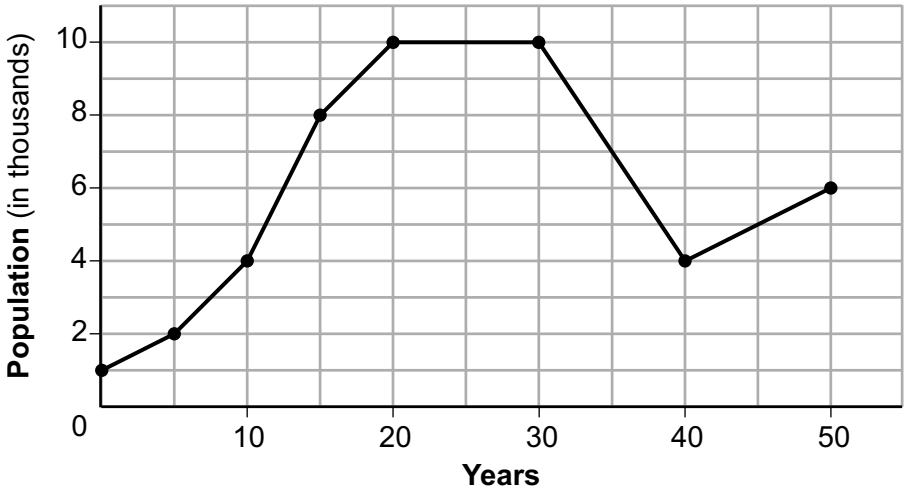
Explain what your average rate of change means from year 30 to year 40 in the context of the problem.

it means that in the years 30-40 on the graph it decreased

Score 2: The student stated the correct interval and maximum population, but no further correct work was shown.

Question 33

33 Anessa is studying the changes in population in a town. The graph below shows the population over 50 years.



State the entire interval during which the population remained constant.

$20 \leq x \leq 30$

State the maximum population of the town over the 50-year period.

10

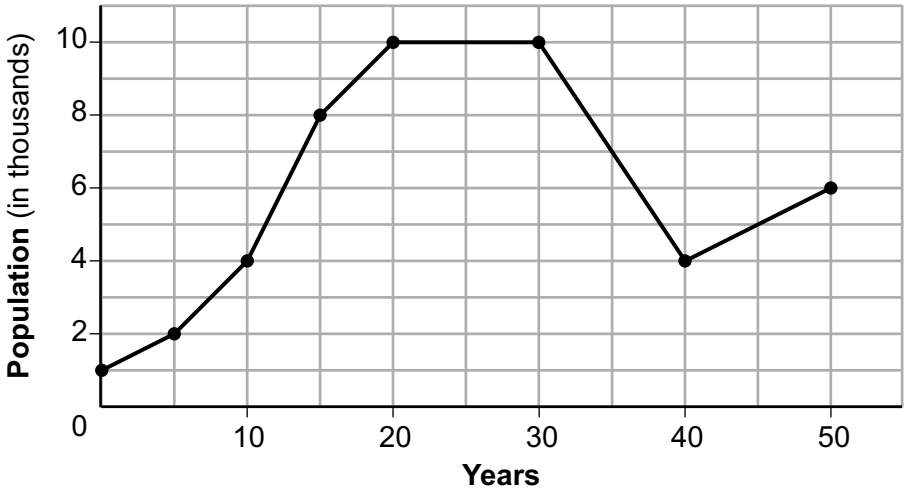
Determine the average rate of change from year 30 to year 40.

Explain what your average rate of change means from year 30 to year 40 in the context of the problem.

Score 1: The student stated the correct interval, but no further correct work was shown.

Question 33

33 Anessa is studying the changes in population in a town. The graph below shows the population over 50 years.



State the entire interval during which the population remained constant.

Population 10 1,000

State the maximum population of the town over the 50-year period.

50 16,000 year period.

Determine the average rate of change from year 30 to year 40.

Rate of change for year 30 to year 40. 2.5

Explain what your average rate of change means from year 30 to year 40 in the context of the problem.

This means the changes in population in a town.

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

Question 34

34 The table below shows the number of math classes missed during a school year for nine students, and their final exam scores.

Number of Classes Missed (x)	2	10	3	22	15	2	20	18	9
Final Exam Score (y)	99	72	90	35	60	80	40	43	75

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

$y = -2.81x + 97.55$

State the correlation coefficient for your linear regression. Round your answer to the *nearest hundredth.*

$r = -.97$

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

the relationship between # of classes missed and final exam score is negative and strong

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

Question 34

34 The table below shows the number of math classes missed during a school year for nine students, and their final exam scores.

Number of Classes Missed (x)	2	10	3	22	15	2	20	18	9
Final Exam Score (y)	99	72	90	35	60	80	40	43	75

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

$-2.81x+97.55$

State the correlation coefficient for your linear regression. Round your answer to the *nearest hundredth.*

$-.97$

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

it has a strong negative relationship.

Score 3: The student wrote an expression instead of an equation.

Question 34

34 The table below shows the number of math classes missed during a school year for nine students, and their final exam scores.

Number of Classes Missed (x)	2	10	3	22	15	2	20	18	9
Final Exam Score (y)	99	72	90	35	60	80	40	43	75

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

$y = ax + b$

$a = -2.415129151$

$b = 95.78659287$

$y = -2.42x + 95.79$

$r = -.8696647403$

State the correlation coefficient for your linear regression. Round your answer to the *nearest hundredth.*

$r = -0.87$

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

Strong

Score 3: The student made a data entry error, but showed the full display of the calculator and gave an appropriate response based on the display.

Question 34

34 The table below shows the number of math classes missed during a school year for nine students, and their final exam scores.

Number of Classes Missed (x)	2	10	3	22	15	2	20	18	9
Final Exam Score (y)	99	72	90	35	60	80	40	43	75

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

$y = -2.81 + 97.55$

State the correlation coefficient for your linear regression. Round your answer to the *nearest hundredth.*

$r = -.97$

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

It indicates the change

Score 2: The student did not write *x* in the equation and did not state strong.

Question 34

34 The table below shows the number of math classes missed during a school year for nine students, and their final exam scores.

Number of Classes Missed (x)	2	10	3	22	15	2	20	18	9
Final Exam Score (y)	99	72	90	35	60	80	40	43	75

y = mx+b

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

y = -2.81 x + 97.56

State the correlation coefficient for your linear regression. Round your answer to the *nearest hundredth.*

correlation = coefficient =

.94

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

That around .94 is the number that is added for each classes has a miss.

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

Question 34

34 The table below shows the number of math classes missed during a school year for nine students, and their final exam scores.

Number of Classes Missed (x)	2	10	3	22	15	2	20	18	9
Final Exam Score (y)	99	72	90	35	60	80	40	43	75

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

State the correlation coefficient for your linear regression. Round your answer to the *nearest hundredth.*

−.91

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

Strong

Score 1: The student wrote an appropriate indication based an incorrect correlation coefficient.

Question 34

34 The table below shows the number of math classes missed during a school year for nine students, and their final exam scores.

Number of Classes Missed (x)	2	10	3	22	15	2	20	18	9
Final Exam Score (y)	99	72	90	35	60	80	40	43	75

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

$\Delta y = (99) - (72) = \frac{27}{-8} = 3.375 \rightarrow 3.38$ x

$\Delta x = (2) - (10) = -8$

$y = mx + b$

$(72) = (10)(3.38) + b$

$72 = 33.8 + b \rightarrow 38.2 = b$

$-33.8 \quad -33.8$

$y = 3.38x + 38.2$

State the correlation coefficient for your linear regression. Round your answer to the *nearest hundredth.*

3.38

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

The correlation coefficient indicates the amount that the final exam score decreases for each number of class missed.

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

Question 35

35 A fence was installed around the edge of a rectangular garden. The length, l, of the fence was 5 feet less than 3 times its width, w. The amount of fencing used was 90 feet.

Write a system of equations or write an equation using one variable that models this situation.

$$2w + 2(3w - 5) = 90$$

Determine algebraically the dimensions, in feet, of the garden.

$2w + 2(3w - 5) = 90$

$2w + 6w - 10 = 90$

$+10 \quad +10$

$\frac{8w}{8} = \frac{100}{8}$

$w = 12.5$

length $= 3(12.5) - 5$

$l = 32.5$

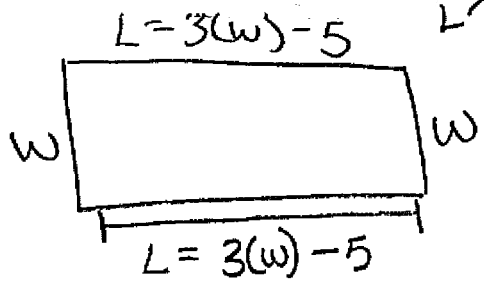
Score 4: The student gave a complete and correct response.

Question 35

35 A fence was installed around the edge of a rectangular garden. The length, l, of the fence was 5 feet less than 3 times its width, w. The amount of fencing used was 90 feet.

Write a system of equations or write an equation using one variable that models this situation.

$3(w) - 5 + 3(w) - 5 + 2w = 90\text{ft.}$



Determine algebraically the dimensions, in feet, of the garden.

$3(w) - 5 + 3(w) - 5 + 2w = 90\text{ ft.}$

$3w - 5 + 3w - 5 + 2w = 90$

$8w - 10 = 90$

$+10 \quad +10$

$\frac{8w}{8} = \frac{100}{8}$

$w = 12.5\text{ ft.}$

$L = 3(12.5) - 5$

$L = 32.5\text{ ft.}$

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

Question 35

35 A fence was installed around the edge of a rectangular garden. The length, l, of the fence was 5 feet less than 3 times its width, w. The amount of fencing used was 90 feet.

Write a system of equations or write an equation using one variable that models this situation.

Determine algebraically the dimensions, in feet, of the garden.

$2(3w-5)+2w=90$

$6w-10+2w=90$

$8w-10=90$

$+10 \quad +10$

$\frac{8w}{8}=\frac{100}{8}$

$w=12.5$

Width = 12.5 feet

length = 32.5 feet

$3(12.5)-5=32.5$

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

Question 35

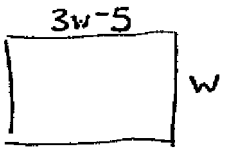
35 A fence was installed around the edge of a rectangular garden. The length, l, of the fence was 5 feet less than 3 times its width, w. The amount of fencing used was 90 feet.

Write a system of equations or write an equation using one variable that models this situation.

$L = 3w - 5$

$90 = L + w$

Determine algebraically the dimensions, in feet, of the garden.



$90 = (3w - 5) + w$

$90 = 4w - 5$

$+5 \quad +5$

$\frac{95}{4} = \frac{4w}{4}$

$23.75 = w$

width = 23.75 feet
length = 66.25 feet

Score 3: The student wrote only one equation in the system correctly, but solved the system appropriately.

Question 35

35 A fence was installed around the edge of a rectangular garden. The length, l, of the fence was 5 feet less than 3 times its width, w. The amount of fencing used was 90 feet.

Write a system of equations or write an equation using one variable that models this situation.

let l = length
let w = width

$3w - 5 = l$

$2l + 2w = 90$

Determine algebraically the dimensions, in feet, of the garden.

$-2(3w - 5 = l)$

$-6w + 10 = -2l$

$3(2l + 2w = 90)$

$6l + 6w = 180$

$-6l \quad\quad -6l$

$6w = 180 - 6l$

$-180 \quad -180$

$6w - 180 = -6l$

$-6w + 10 = -2l$

$\frac{-170}{-8} = \frac{-8l}{-8}$

$l = 21.25$

$3w - 5 = l$

$3w - 5 = 21.25$

$+5 \quad +5$

$\frac{3w}{3} = \frac{26.25}{3}$

$w = 8.75$

Score 3: The student made one computational error.

Question 35

35 A fence was installed around the edge of a rectangular garden. The length, l, of the fence was 5 feet less than 3 times its width, w. The amount of fencing used was 90 feet.

Write a system of equations or write an equation using one variable that models this situation.

$l + w = 90$

$l = 3w - 5$

Determine algebraically the dimensions, in feet, of the garden.

$3w - 5 + w = 90$

$4w - 5 = 90$

$+5 \quad +5$

$\frac{4w}{4} = \frac{95}{4}$

$w = 23.75$

Score 2: The student wrote only one equation correctly and solved the system appropriately, but found only one dimension.

Question 35

35 A fence was installed around the edge of a rectangular garden. The length, l, of the fence was 5 feet less than 3 times its width, w. The amount of fencing used was 90 feet.

Write a system of equations or write an equation using one variable that models this situation.

$L=3w-5$

$w(3w-5)=90$

Determine algebraically the dimensions, in feet, of the garden.

$L=3w-5$

$w(3w-5)=90$

$3(3w^2-5w=90)$

$5(3w-5=L)$

$9w^2-15w=180$

$-5L-15w=25$

$9w^2-5L=155$

Score 1: The student wrote only one equation correctly.

Question 35

35 A fence was installed around the edge of a rectangular garden. The length, l, of the fence was 5 feet less than 3 times its width, w. The amount of fencing used was 90 feet.

Write a system of equations or write an equation using one variable that models this situation.

$3(w-5)=90$

Determine algebraically the dimensions, in feet, of the garden.

$3(w-5)=90$

$3w-15=90$

$+15 \quad +15$

$\frac{3w}{3}=\frac{105}{3}$

$w=35$

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

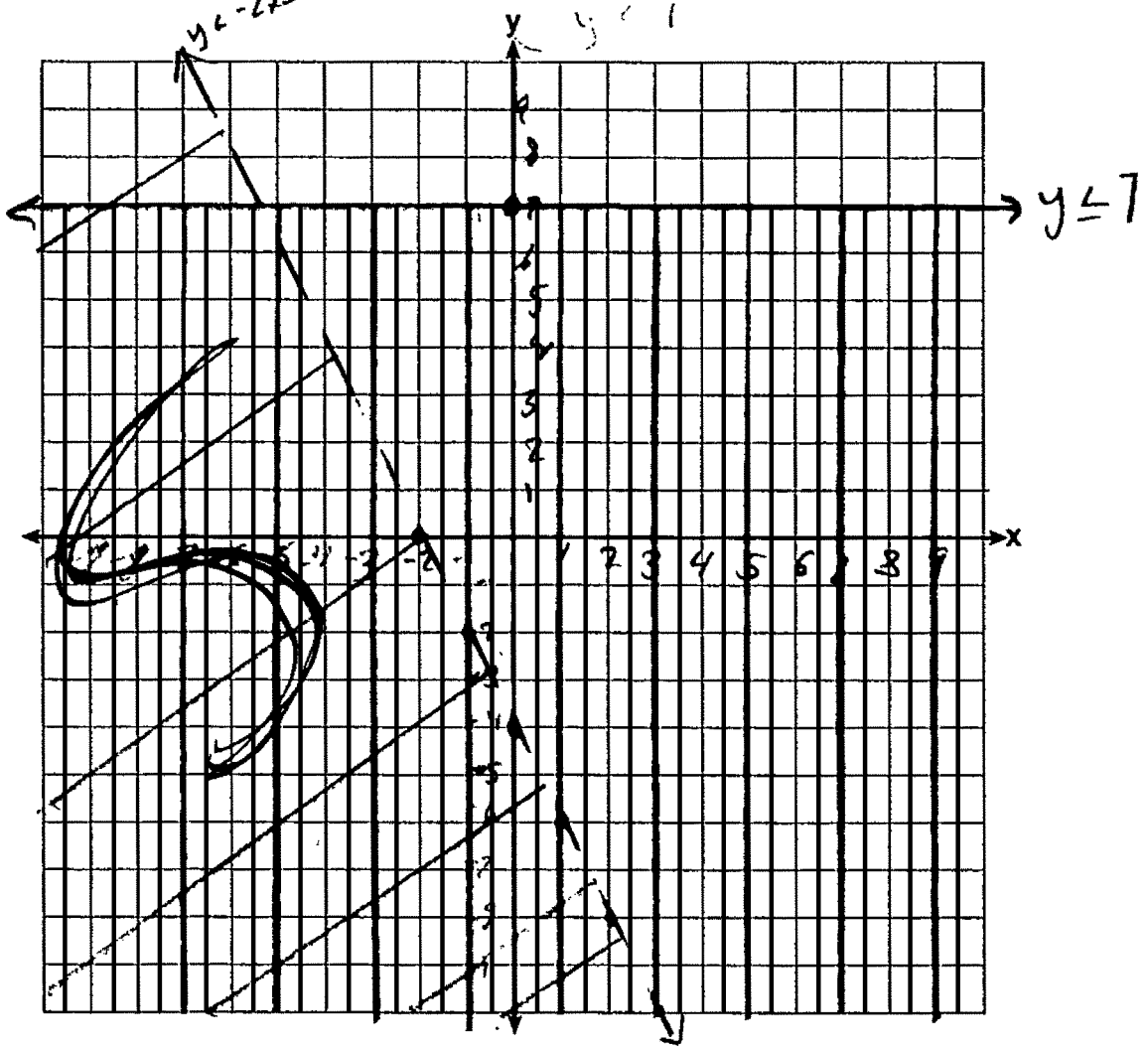
Question 36

36 Given:

$3y - 9 \leq 12$

$y < -2x - 4$

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



State the coordinates of a point that satisfies both inequalities. Justify your answer.

(-2, -4)

The coordinates are in the solution set

$-4 \leq 7$ yes

$-4 < 1-2(-2)-4$

$-4 < 4-4$

$-4 < 0$

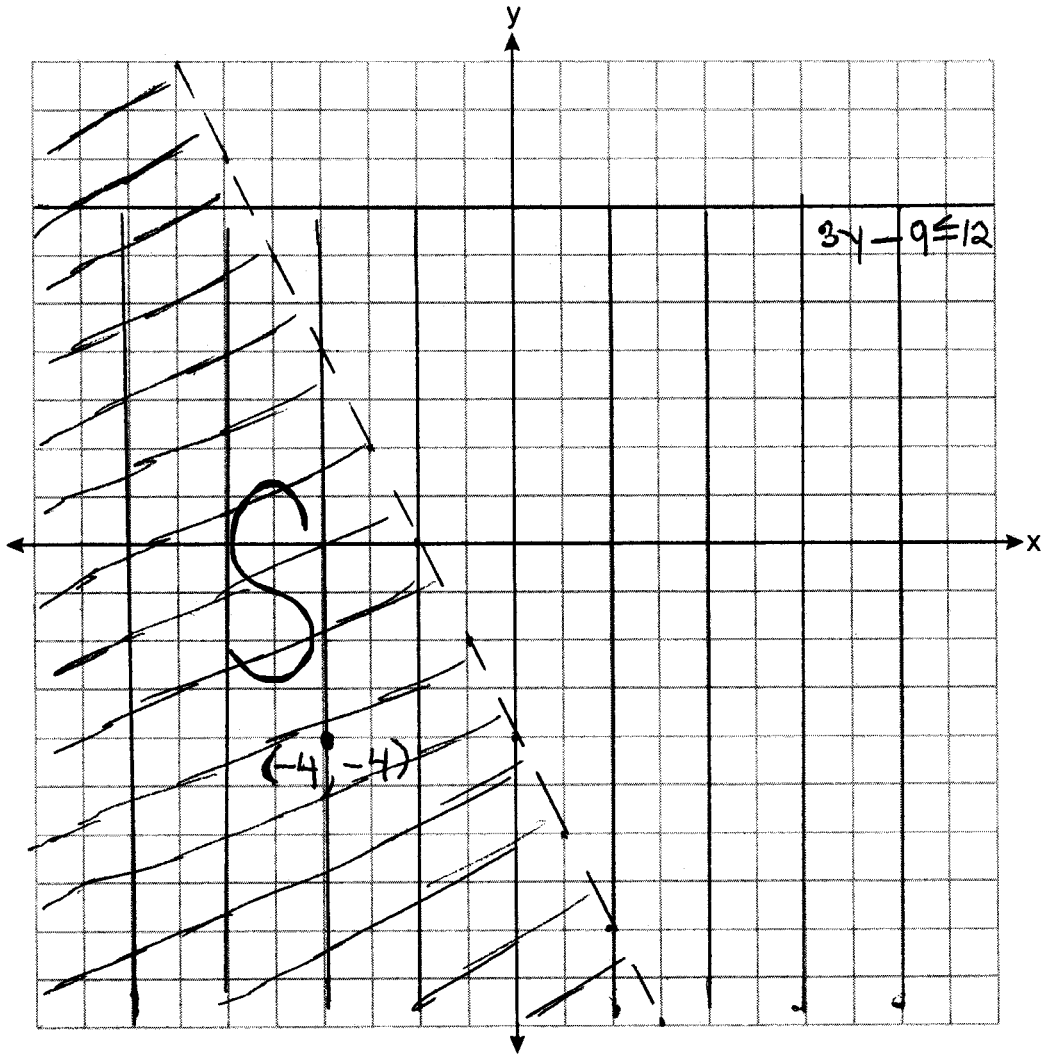
yes

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

Question 36

36 Given: $3y - 9 \leq 12$
$y < -2x - 4$

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



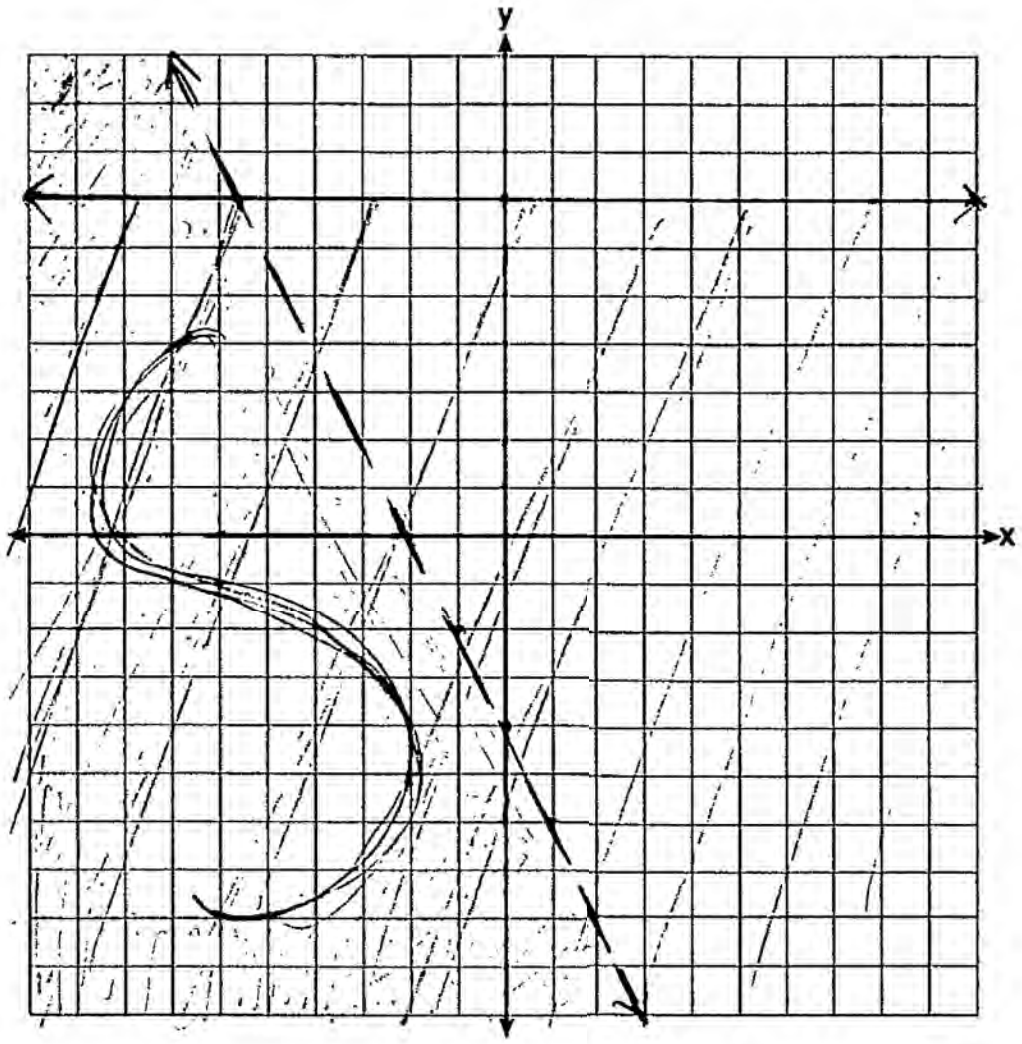
State the coordinates of a point that satisfies both inequalities. Justify your answer.

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

Question 36

36 Given: $3y - 9 \leq 12$
$y < -2x - 4$

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



State the coordinates of a point that satisfies both inequalities. Justify your answer.

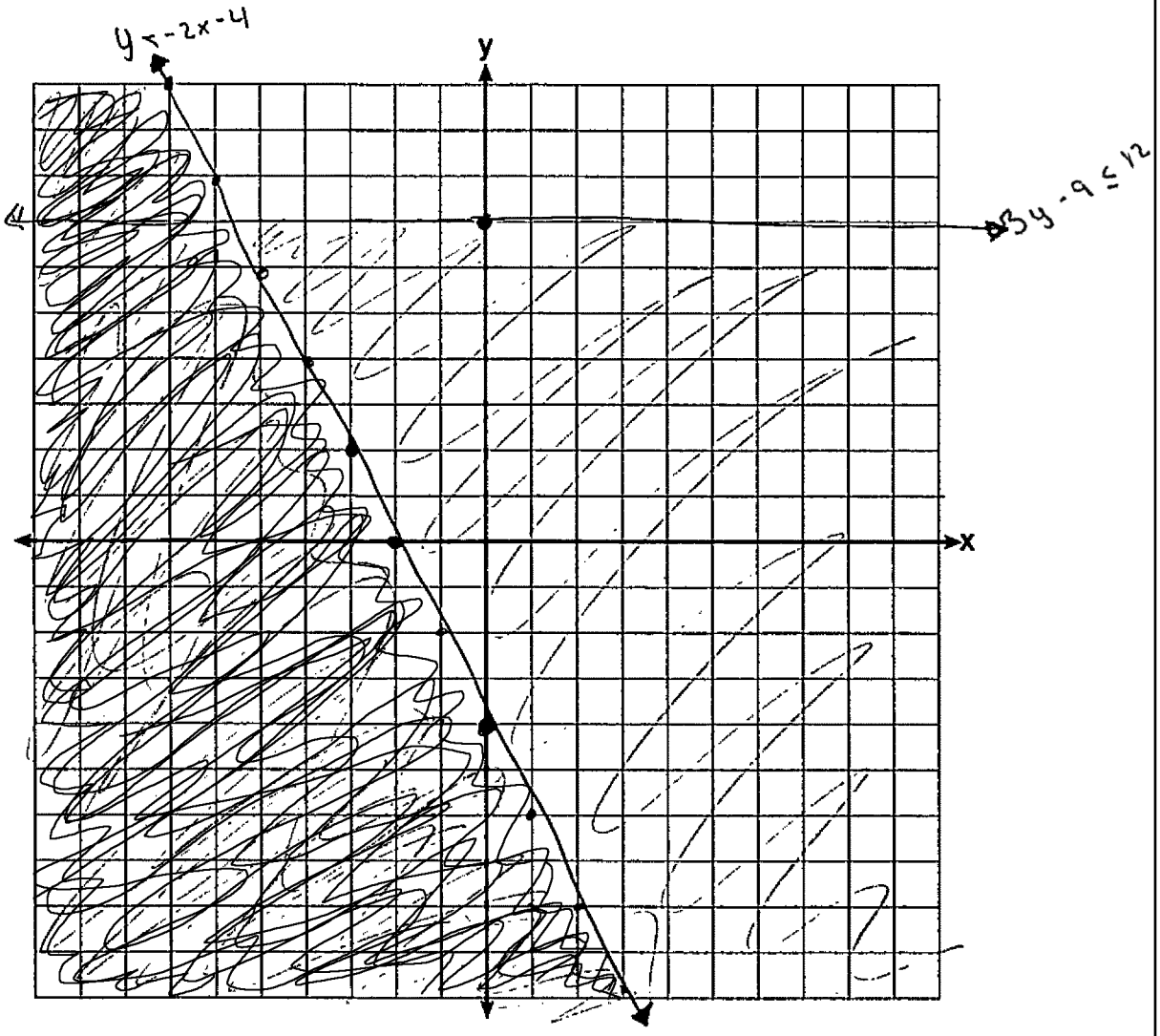
(-7,1) is a point which satisfies both inequalities because it lies in the solution set on the graph.

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

Question 36

36 Given: $3y - 9 \leq 12$
$y < -2x - 4$

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



State the coordinates of a point that satisfies both inequalities. Justify your answer.

(-4, -2) because if you plug it in to y < -2x - 4 you get 4 and 4 is greater than -2

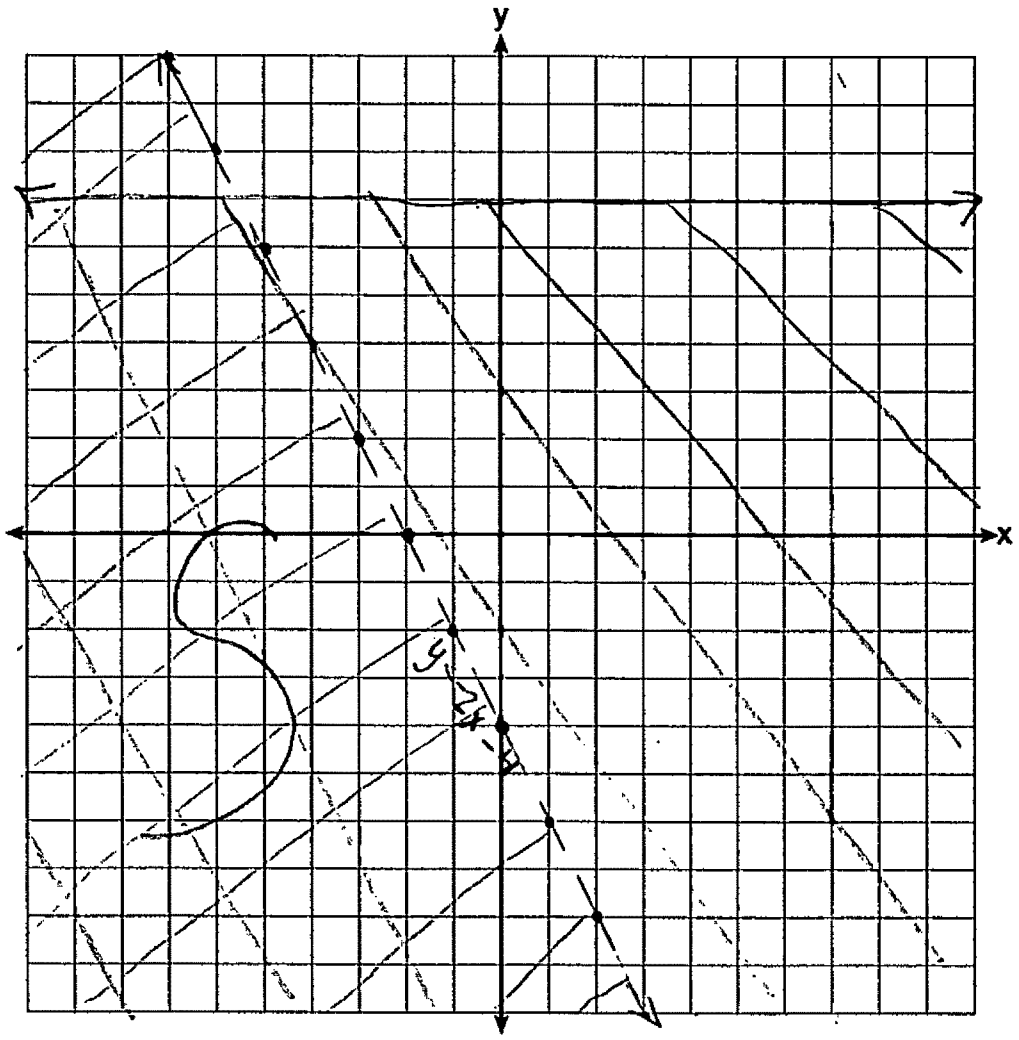
Score 2: The student only graphed one inequality correctly and did not write a complete justification.

Question 36

36 Given: $3y - 9 \leq 12$
$y < -2x - 4$

$3y - 9 \leq 12$
$+9 \quad +9$
$\frac{3y}{3} \leq \frac{21}{3}$ $y \leq 7$

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



State the coordinates of a point that satisfies both inequalities. Justify your answer.

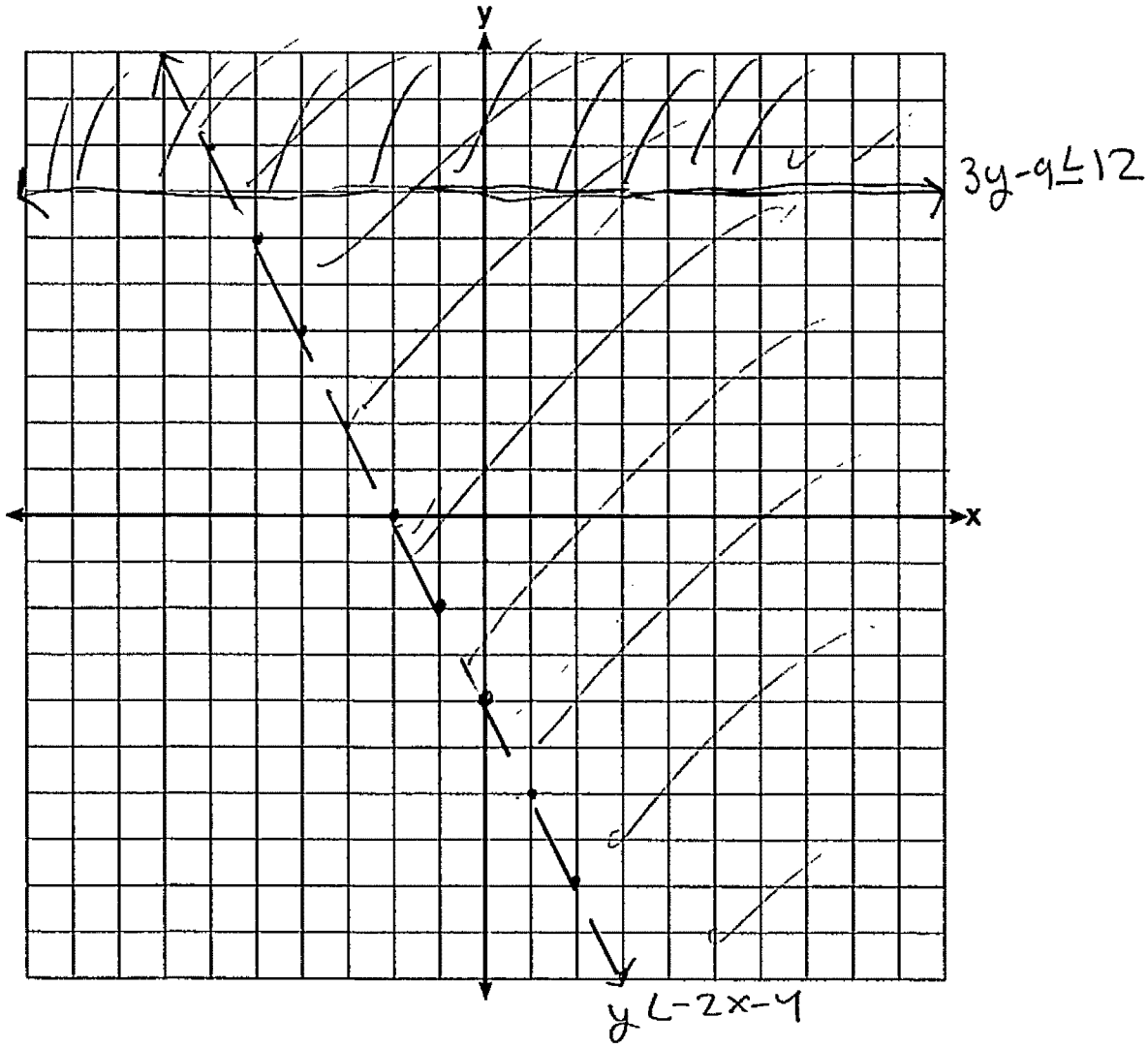
Score 2: The student graphed both inequalities correctly, but no further correct work was shown.

Question 36

36 Given: $3y - 9 \leq 12$

$y < -2x - 4$

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



State the coordinates of a point that satisfies both inequalities. Justify your answer.

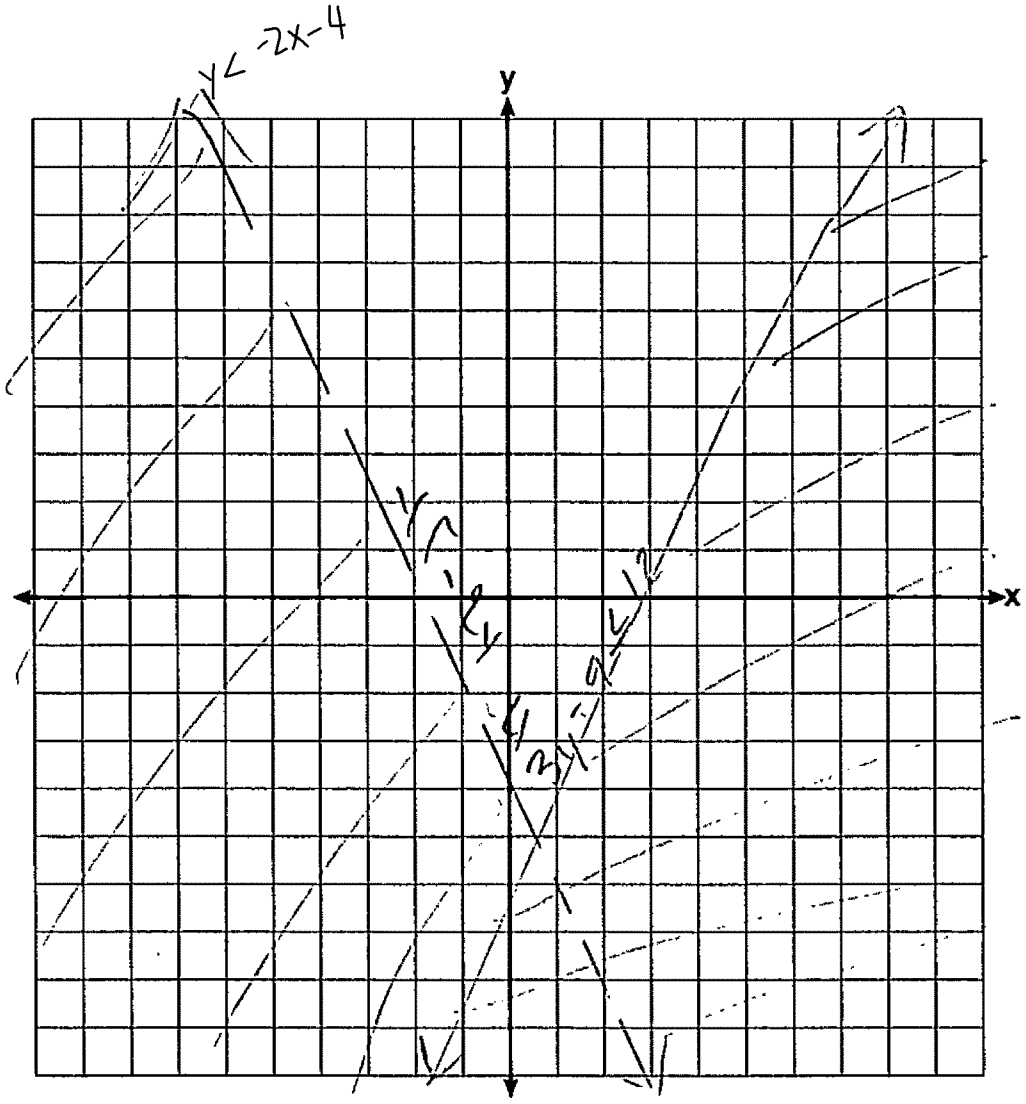
(8,12)

Score 1: The student made the same shading error in both inequalities, and no further correct work was shown.

Question 36

36 Given: $3y - 9 \leq 12$
$y < -2x - 4$

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



State the coordinates of a point that satisfies both inequalities. Justify your answer.

Score 1: The student graphed and labeled one inequality correctly, but no further correct work was shown.

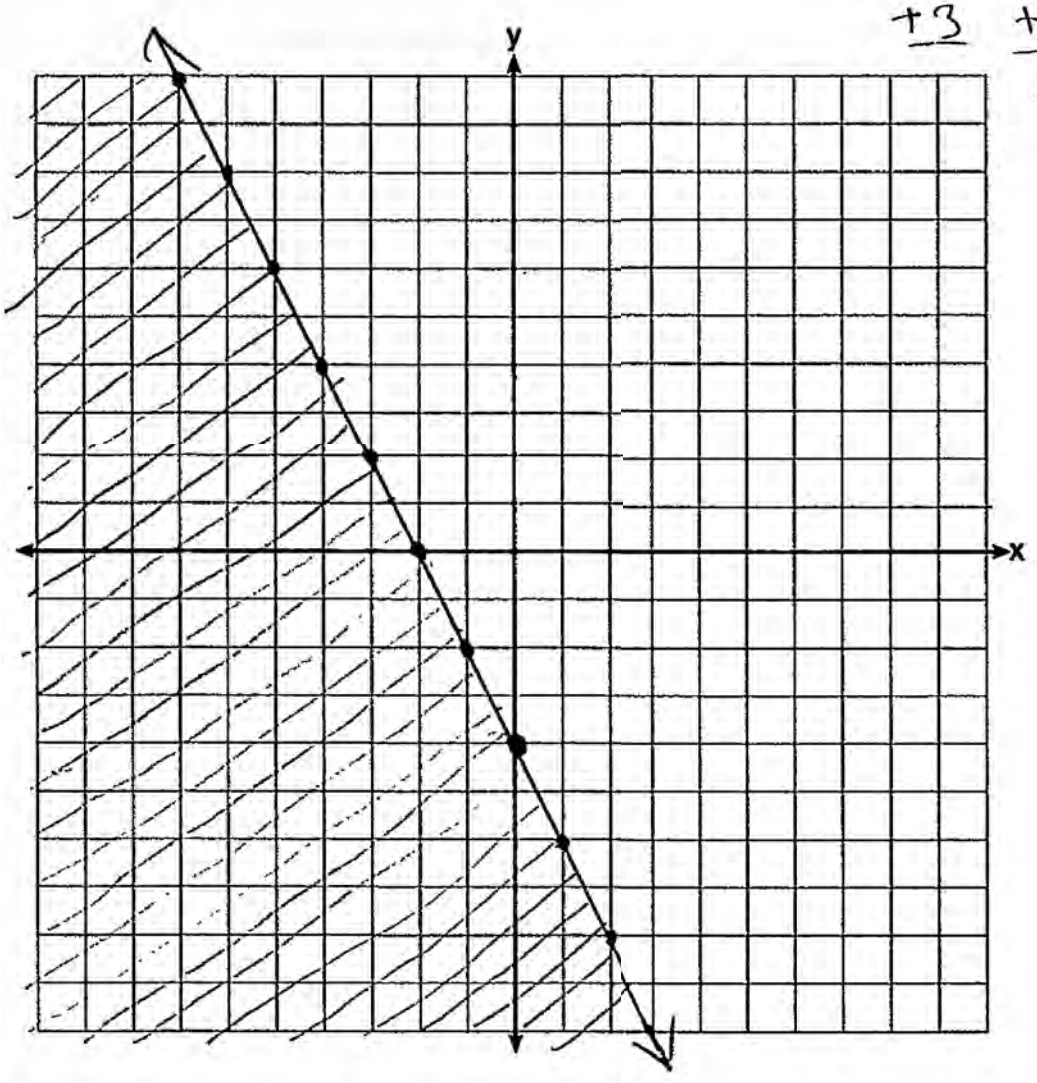
Question 36

36 Given: $3y - 9 \leq 12$
$y < -2x - 4$

$\frac{3y}{3} - \frac{9}{3} \leq \frac{12}{3}$

$y - 3 \leq 4$
$+3 \quad +3$
$y \leq 7$

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



State the coordinates of a point that satisfies both inequalities. Justify your answer.

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

Question 37

37 Aidan and his sister Ella are having a race. Aidan runs at a rate of 10 feet per second. Ella runs at a rate of 6 feet per second. Since Ella is younger, Aidan is letting her begin 30 feet ahead of the starting line.

Let y represent the distance from the starting line and x represent the time elapsed, in seconds.

Write an equation to model the distance Aiden traveled.

$y = 10x$

Write an equation to model the distance Ella traveled.

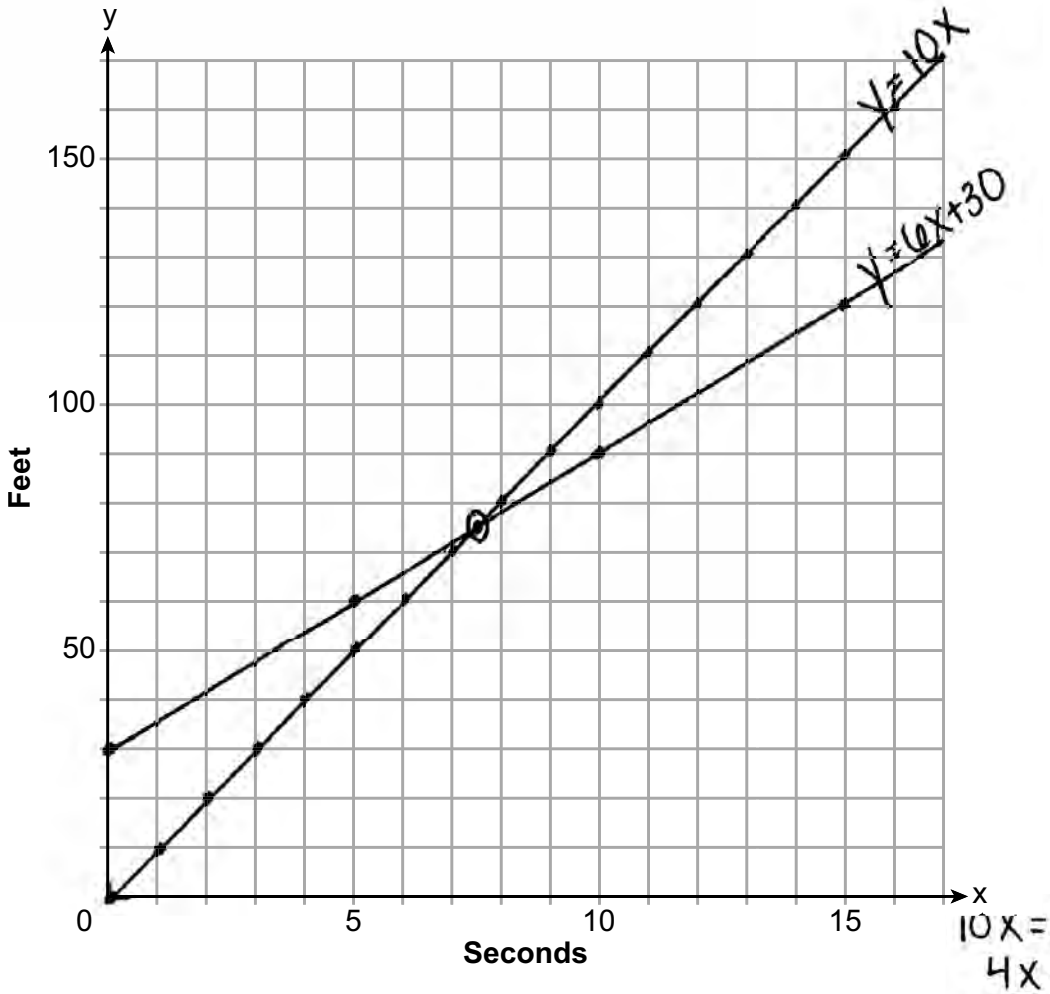
$y = 6x + 30$

Question 37 is continued on the next page.

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

Question 37 continued

On the set of axes below, graph your equations.



$10x = 6x + 30$

$\frac{4x}{4} = \frac{30}{4}$

$x = 7.5$

Exactly how many seconds does it take Aidan to catch up to Ella? Justify your answer.

Aidan catches Ella after 7.5 seconds.

Question 37

37 Aidan and his sister Ella are having a race. Aidan runs at a rate of 10 feet per second. Ella runs at a rate of 6 feet per second. Since Ella is younger, Aidan is letting her begin 30 feet ahead of the starting line.

Let y represent the distance from the starting line and x represent the time elapsed, in seconds.

Write an equation to model the distance Aiden traveled.

$y = 10x$

Write an equation to model the distance Ella traveled.

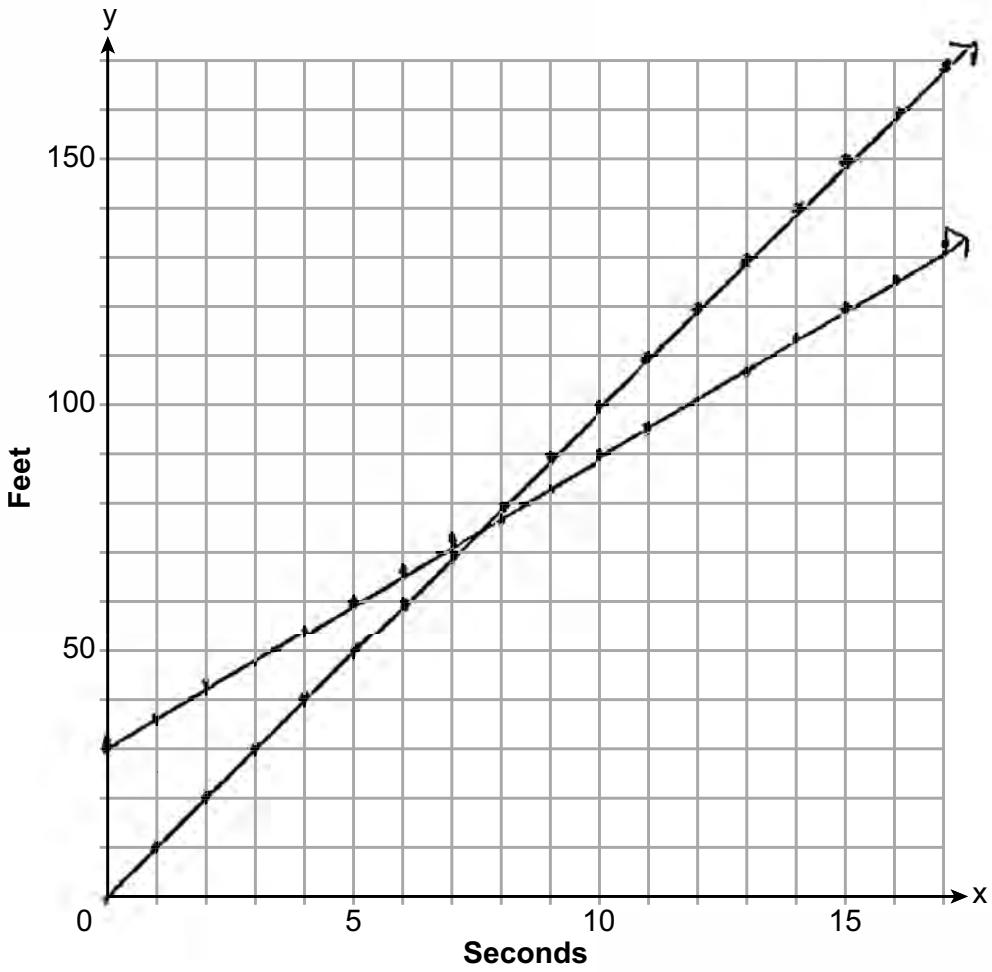
$y = 6x + 30$

Question 37 is continued on the next page.

Score 5: The student did not label at least one of the lines.

Question 37 continued

On the set of axes below, graph your equations.



Exactly how many seconds does it take Aidan to catch up to Ella? Justify your answer.

$10x = 6x + 30$
$-6x \quad -6x$
$4x = 30$

$\frac{4x}{4} = \frac{30}{4}$
$x = 7.5$

It takes 7.5 seconds for Aidan to catch up to Ella because when you put the equations equal to each other you get 7.5 as your answer

Question 37

37 Aidan and his sister Ella are having a race. Aidan runs at a rate of 10 feet per second. Ella runs at a rate of 6 feet per second. Since Ella is younger, Aidan is letting her begin 30 feet ahead of the starting line.

Let y represent the distance from the starting line and x represent the time elapsed, in seconds.

Write an equation to model the distance Aiden traveled.

$y = 10x$

Write an equation to model the distance Ella traveled.

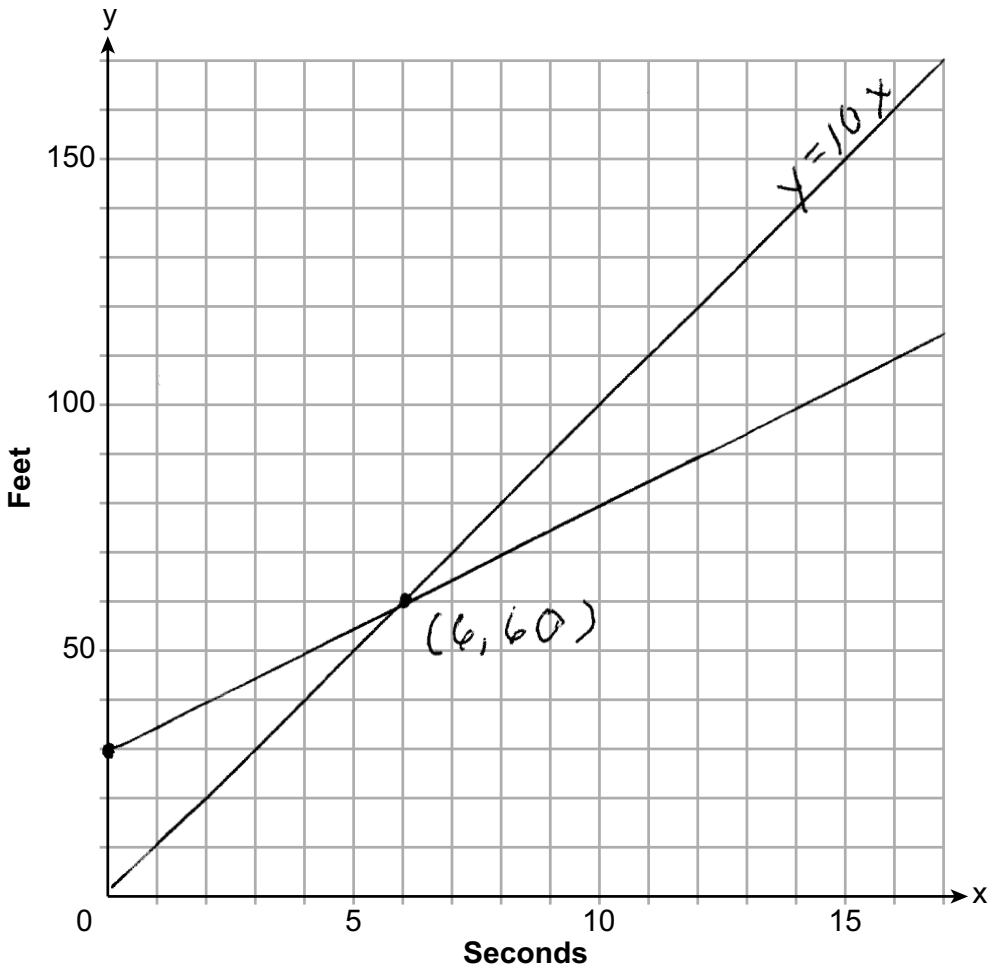
$y = 6x + 30$

Question 37 is continued on the next page.

Score 5: The student wrote two correct equations but graphed one incorrectly. They found an appropriate point of intersection and justified their answer.

Question 37 continued

On the set of axes below, graph your equations.



Exactly how many seconds does it take Aidan to catch up to Ella? Justify your answer.

6 seconds because that is where the lines cross

Question 37

37 Aidan and his sister Ella are having a race. Aidan runs at a rate of 10 feet per second. Ella runs at a rate of 6 feet per second. Since Ella is younger, Aidan is letting her begin 30 feet ahead of the starting line.

Let y represent the distance from the starting line and x represent the time elapsed, in seconds.

Write an equation to model the distance Aiden traveled.

$y = 10x$

Write an equation to model the distance Ella traveled.

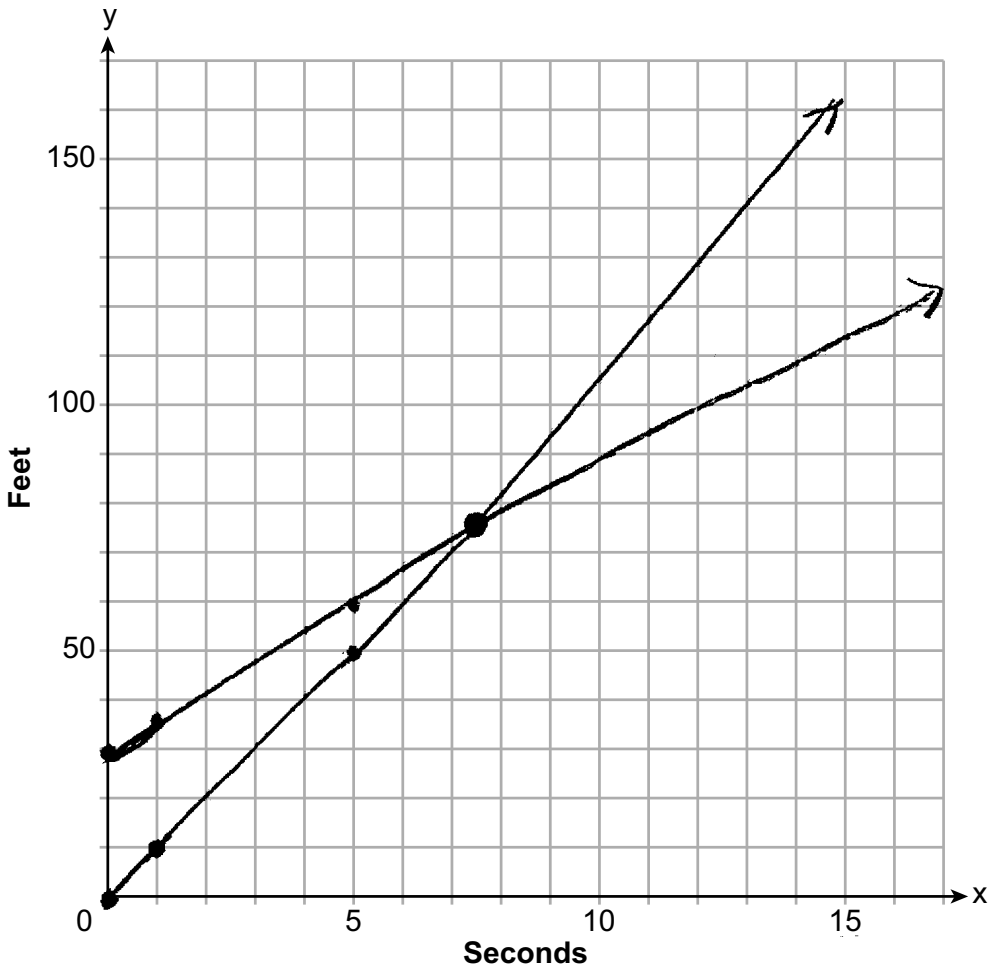
$y = 6x + 30$

Question 37 is continued on the next page.

Score 4: The student did not label at least one of the lines and did not give a justification.

Question 37 continued

On the set of axes below, graph your equations.



Exactly how many seconds does it take Aidan to catch up to Ella? Justify your answer.

7.5 seconds

Question 37

37 Aidan and his sister Ella are having a race. Aidan runs at a rate of 10 feet per second. Ella runs at a rate of 6 feet per second. Since Ella is younger, Aidan is letting her begin 30 feet ahead of the starting line.

Let y represent the distance from the starting line and x represent the time elapsed, in seconds.

Write an equation to model the distance Aiden traveled.

$y=10x$

Write an equation to model the distance Ella traveled.

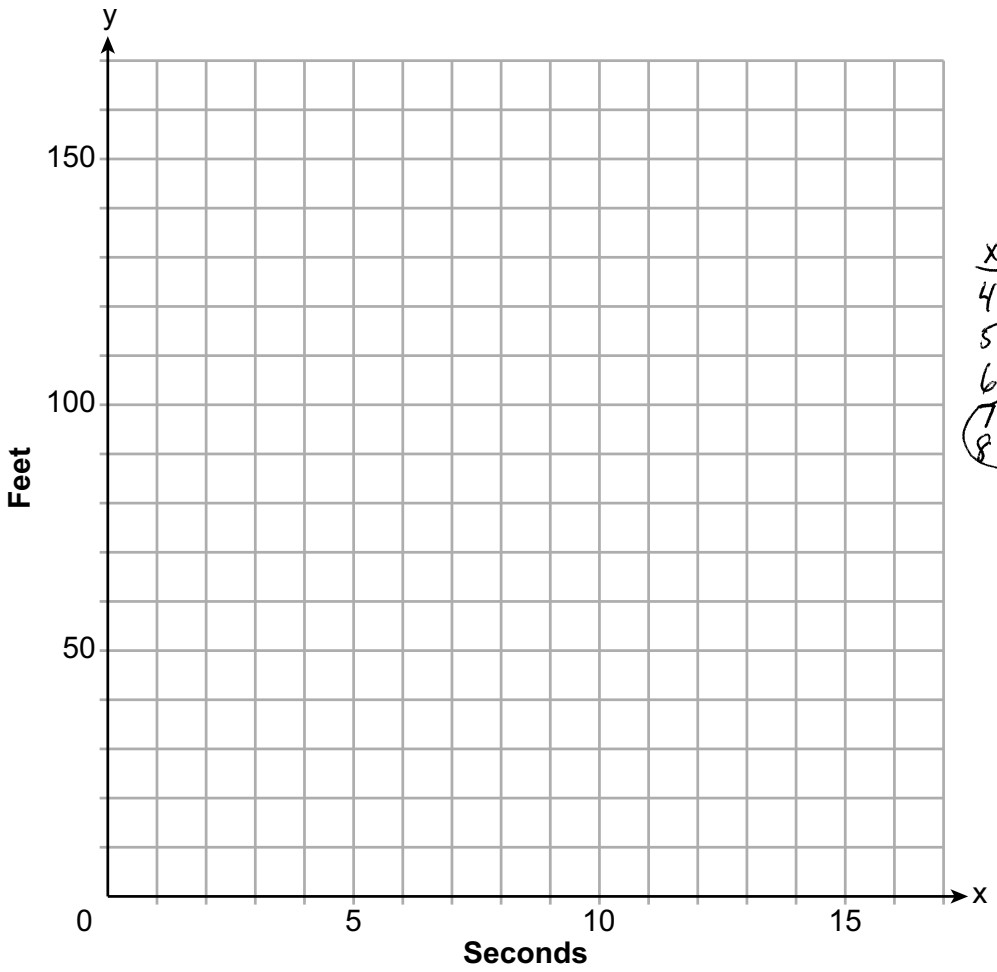
$y=6x+30$

Question 37 is continued on the next page.

Score 4: The student did not graph the equations.

Question 37 continued

On the set of axes below, graph your equations.



x	y_1	y_2
4	40	54
5	50	60
6	60	66
7	70	72
8	80	78

7.5

Exactly how many seconds does it take Aidan to catch up to Ella? Justify your answer.

7.5 Aidan $y = 10(7.5) = 75$
Ella $y = 6(7.5) + 30 = 75$
AT 75 feet he catches up to Ella.

Question 37

37 Aidan and his sister Ella are having a race. Aidan runs at a rate of 10 feet per second. Ella runs at a rate of 6 feet per second. Since Ella is younger, Aidan is letting her begin 30 feet ahead of the starting line.

Let y represent the distance from the starting line and x represent the time elapsed, in seconds.

Write an equation to model the distance Aiden traveled.

$y = 10x - 30$

Write an equation to model the distance Ella traveled.

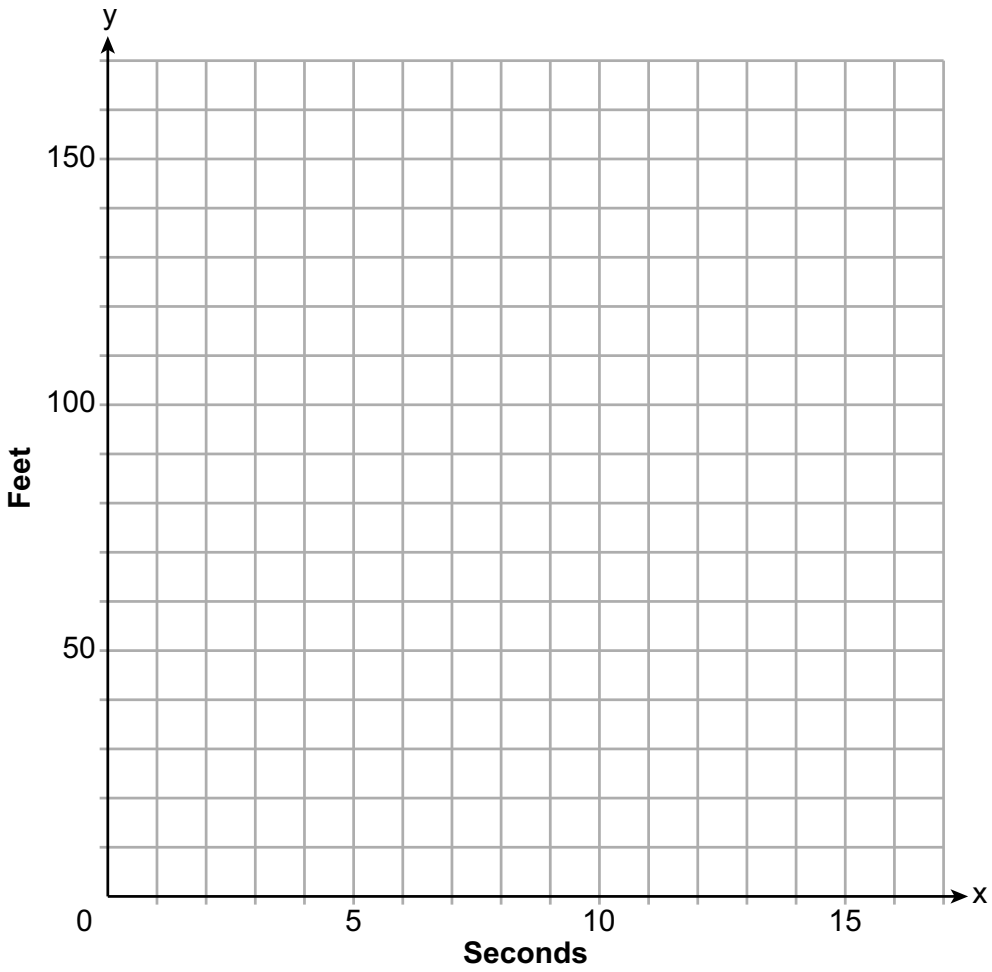
$y = 6x$

Question 37 is continued on the next page.

Score 4: The student wrote two correct equations and justified 7.5.

Question 37 continued

On the set of axes below, graph your equations.



Exactly how many seconds does it take Aidan to catch up to Ella? Justify your answer.

$10x - 30 = 6x$

$4x = 30$

$x = 7.5$

Question 37

37 Aidan and his sister Ella are having a race. Aidan runs at a rate of 10 feet per second. Ella runs at a rate of 6 feet per second. Since Ella is younger, Aidan is letting her begin 30 feet ahead of the starting line.

Let y represent the distance from the starting line and x represent the time elapsed, in seconds.

Write an equation to model the distance Aiden traveled.

$y = 10x$

Write an equation to model the distance Ella traveled.

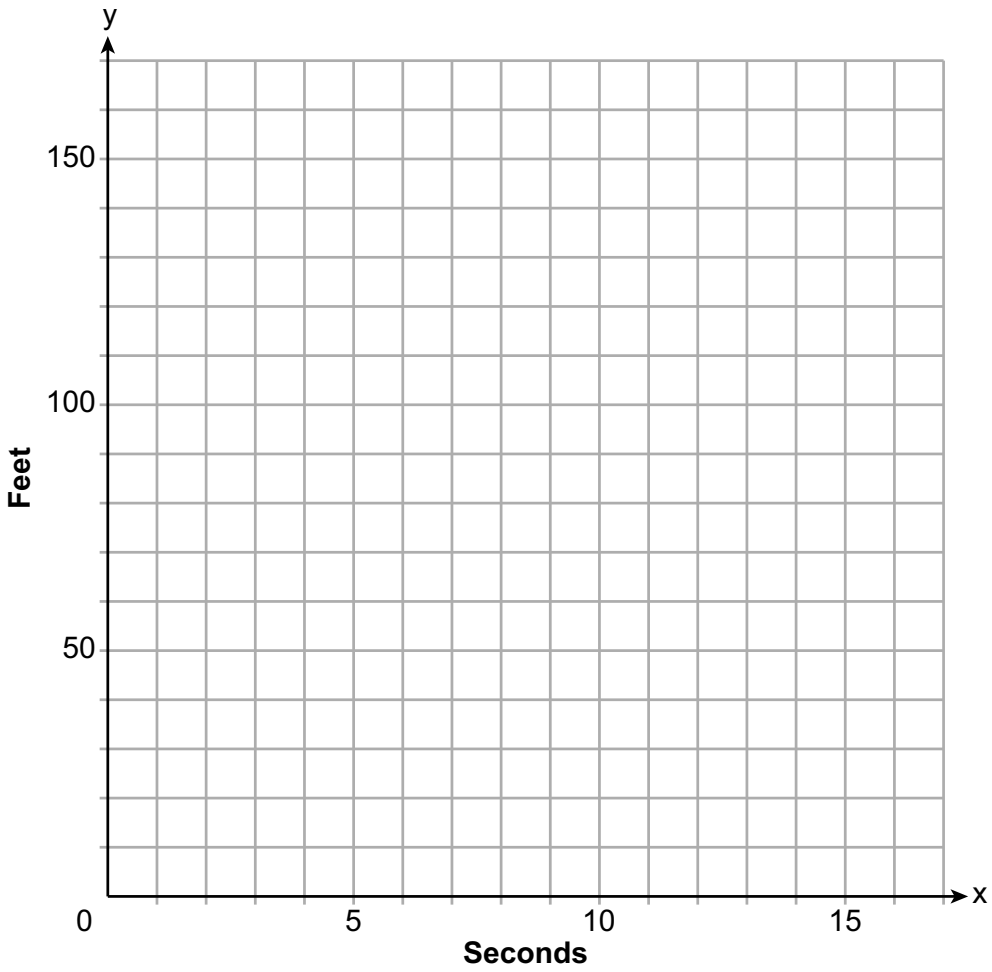
$y = 6x + 30$

Question 37 is continued on the next page.

Score 3: The student wrote two correct equations and stated the correct number of seconds.

Question 37 continued

On the set of axes below, graph your equations.



Exactly how many seconds does it take Aidan to catch up to Ella? Justify your answer.

$y = 10x \quad 6x + 30 = y$

7.5

Question 37

37 Aidan and his sister Ella are having a race. Aidan runs at a rate of 10 feet per second. Ella runs at a rate of 6 feet per second. Since Ella is younger, Aidan is letting her begin 30 feet ahead of the starting line.

Let y represent the distance from the starting line and x represent the time elapsed, in seconds.

Write an equation to model the distance Aiden traveled.

$y = 10x$

Write an equation to model the distance Ella traveled.

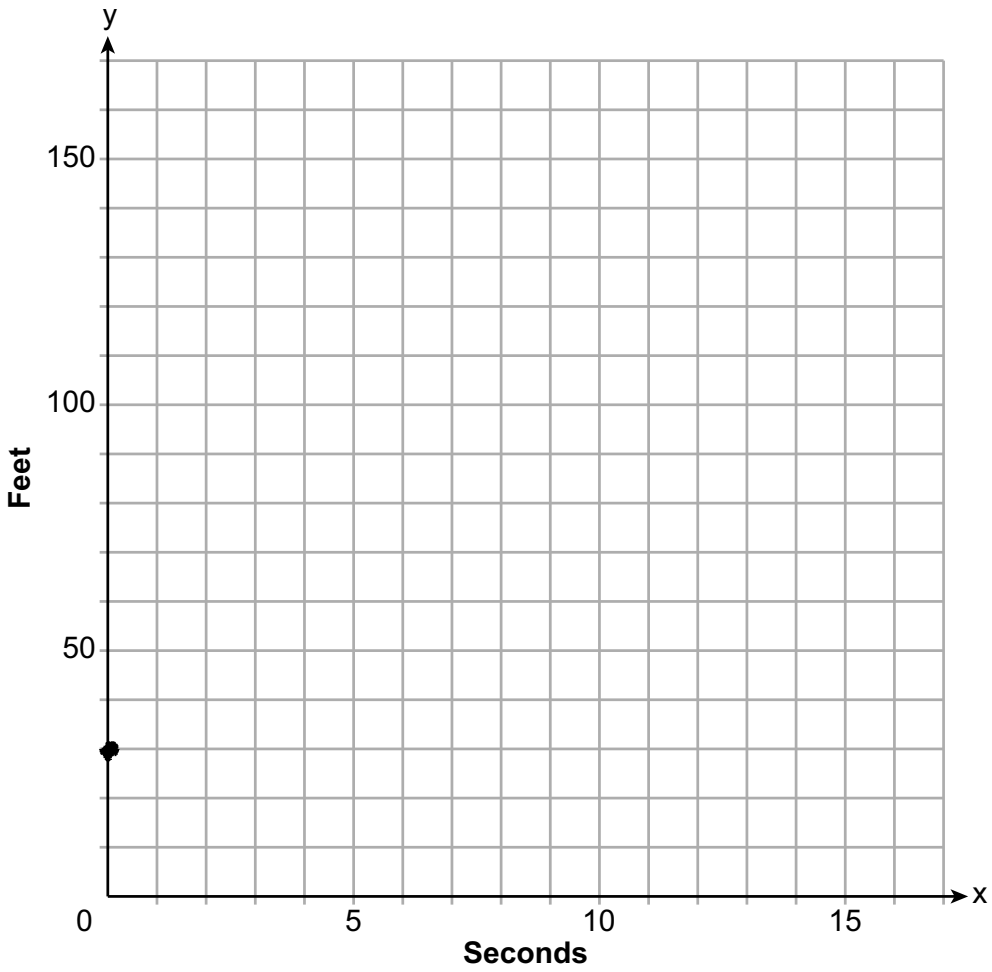
$y = 6x + 30$

Question 37 is continued on the next page.

Score 2: The student wrote the correct equations for Aidan and Ella.

Question 37 continued

On the set of axes below, graph your equations.



Exactly how many seconds does it take Aidan to catch up to Ella? Justify your answer.

Question 37

37 Aidan and his sister Ella are having a race. Aidan runs at a rate of 10 feet per second. Ella runs at a rate of 6 feet per second. Since Ella is younger, Aidan is letting her begin 30 feet ahead of the starting line.

Let y represent the distance from the starting line and x represent the time elapsed, in seconds.

Write an equation to model the distance Aiden traveled.

$y = 10x - 30$

Write an equation to model the distance Ella traveled.

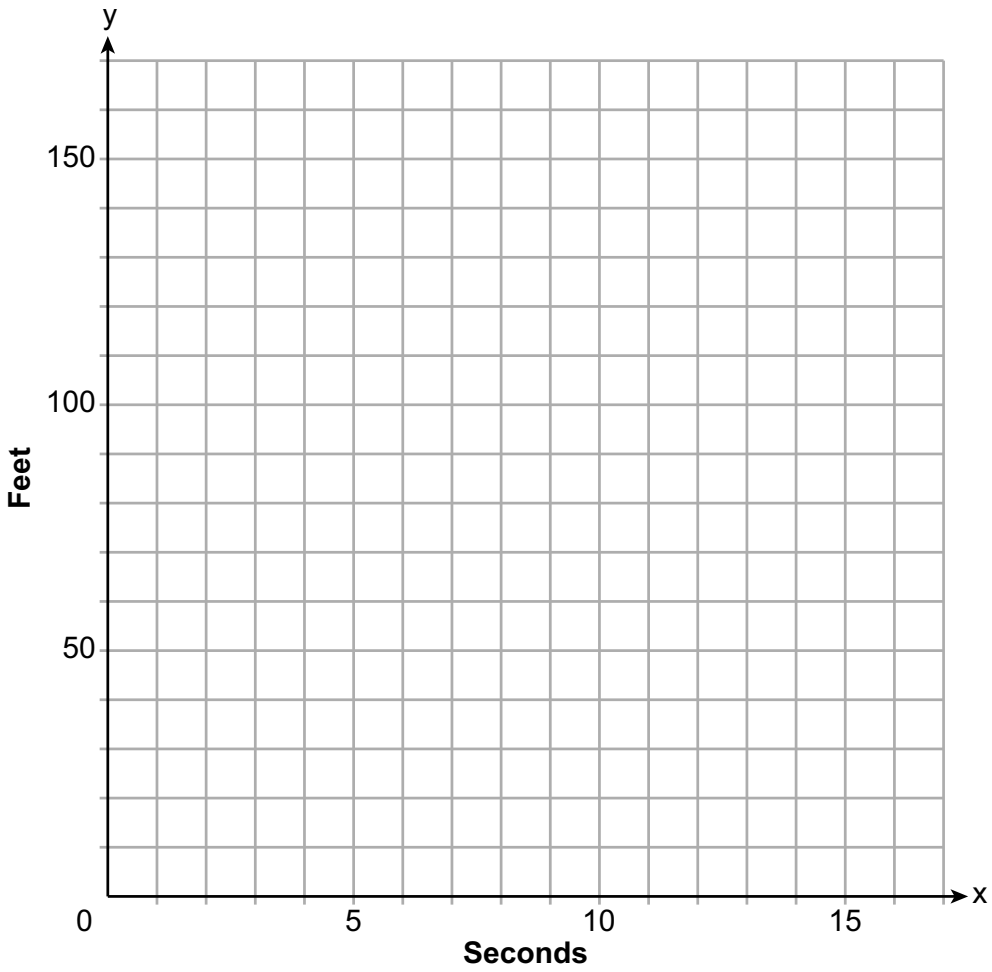
$y = 6x + 30$

Question 37 is continued on the next page.

Score 1: The student only wrote the correct equation for Ella.

Question 37 continued

On the set of axes below, graph your equations.



Exactly how many seconds does it take Aidan to catch up to Ella? Justify your answer.

Question 37

37 Aidan and his sister Ella are having a race. Aidan runs at a rate of 10 feet per second. Ella runs at a rate of 6 feet per second. Since Ella is younger, Aidan is letting her begin 30 feet ahead of the starting line.

Let y represent the distance from the starting line and x represent the time elapsed, in seconds.

Write an equation to model the distance Aiden traveled.

$10x$

Write an equation to model the distance Ella traveled.

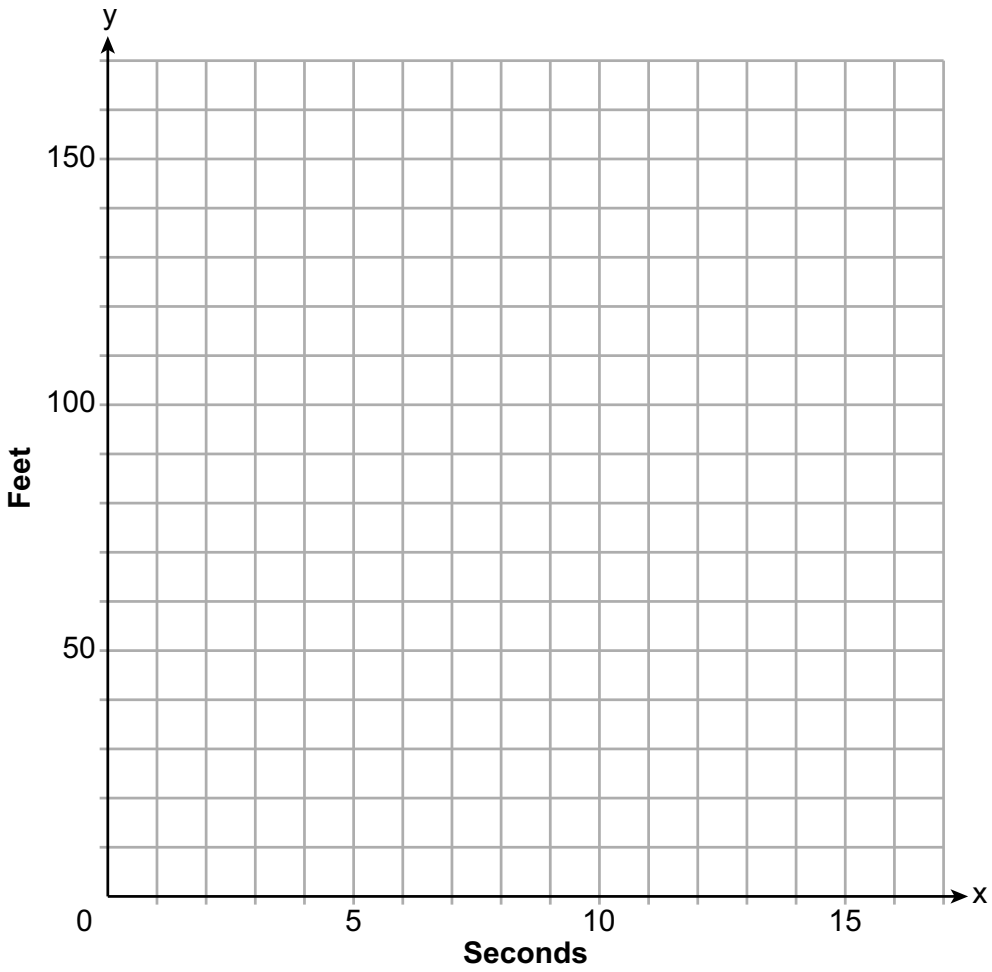
~~$y = 6x$~~ $y = 6x - 30$

Question 37 is continued on the next page.

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

Question 37 continued

On the set of axes below, graph your equations.



Exactly how many seconds does it take Aidan to catch up to Ella? Justify your answer.

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

Regents Examination in Algebra I – January 2023

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

(Use for the January 2023 exam only.)

Raw Score	Scale Score	Performance Level
86	**100**	5
85	**99**	5
84	**97**	5
83	**96**	5
82	**95**	5
81	**94**	5
80	**93**	5
79	**92**	5
78	**91**	5
77	**90**	5
76	**89**	5
75	**89**	5
74	**88**	5
73	**87**	5
72	**87**	5
71	**86**	5
70	**86**	5
69	**86**	5
68	**85**	5
67	**84**	4
66	**84**	4
65	**84**	4
64	**83**	4
63	**83**	4
62	**83**	4
61	**82**	4
60	**82**	4
59	**82**	4
58	**82**	4
57	**81**	4
56	**81**	4
55	**81**	4
54	**81**	4
53	**80**	4
52	**80**	4
51	**80**	4
50	**80**	4
49	**79**	3
48	**79**	3
47	**79**	3
46	**78**	3
45	**78**	3
44	**78**	3
43	**77**	3
42	**77**	3
41	**76**	3
40	**76**	3
39	**75**	3
38	**75**	3
37	**74**	3
36	**74**	3
35	**73**	3
34	**72**	3
33	**71**	3
32	**71**	3
31	**70**	3
30	**69**	3
29	**68**	3
28	**67**	3
27	**66**	3
26	**65**	3
25	**63**	2
24	**62**	2
23	**60**	2
22	**59**	2
21	**57**	2
20	**56**	2
19	**55**	2
18	**52**	1
17	**50**	1
16	**48**	1
15	**46**	1
14	**44**	1
13	**42**	1
12	**39**	1
11	**37**	1
10	**34**	1
9	**31**	1
8	**28**	1
7	**25**	1
6	**22**	1
5	**19**	1
4	**15**	1
3	**12**	1
2	**8**	1
1	**4**	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.