ALGEBRA

I

ALGEBRA I

Wednesday, January 21, 2026 — 1:15 to 4:15 p.m., only

Student Name _____

School Name _____

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

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

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

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

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

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

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

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

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

Part I

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

Use this space for computations.

1 A parabola is graphed on the set of axes below.
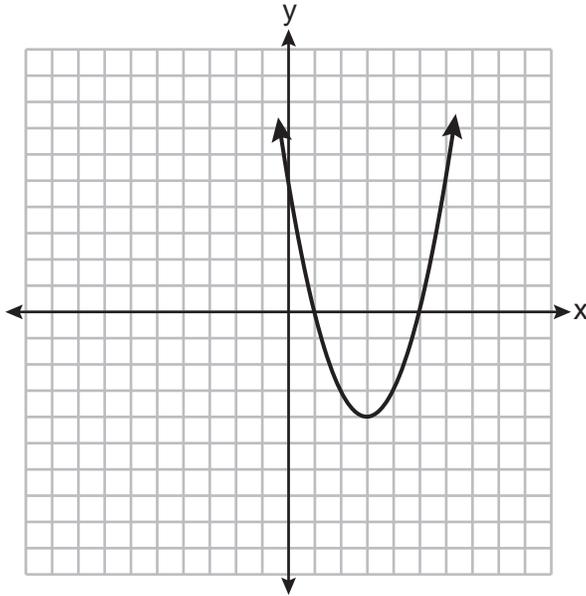
What are the equation of the axis of symmetry and the coordinates of the vertex of this parabola?
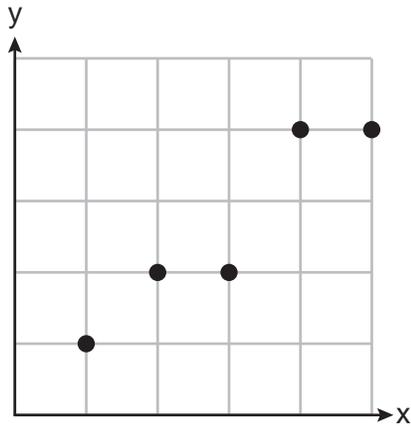
(1) $x = 3$ and $(3, -4)$ (3) $x = -4$ and $(-4, 3)$

(2) $y = 3$ and $(3, -4)$ (4) $y = -4$ and $(-4, 3)$

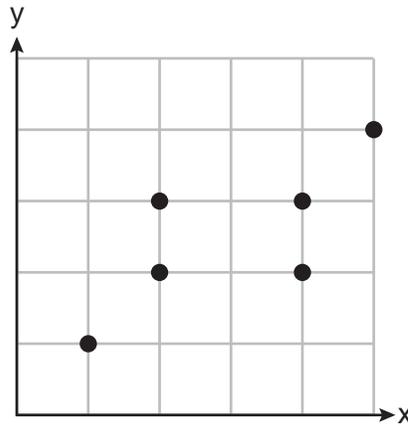**2** The product of $\sqrt{25}$ and $\sqrt{2}$ will result in

(1) an irrational number   (3) a natural number

(2) a rational number   (4) an integer

3 When $f(x) = |4x + 2|$ and $g(x) = 3x + 5$ are graphed on the same set of axes, for which value of x is $f(x) = g(x)$?

(1) 1   (3) 3

(2) 2   (4) 14

4 The expression $x^2 - 26x - 120$ is equivalent to

(1) $(x + 4)(x - 30)$ (3) $(x - 20)(x + 6)$

(2) $(x - 4)(x + 30)$ (4) $(x + 20)(x - 6)$

5 The expression $3 - 2\sqrt{5} + 6\sqrt{5}$ is equivalent to

(1) $7\sqrt{5}$ (3) $3 + 4\sqrt{5}$

(2) $7\sqrt{10}$ (4) $3 + 4\sqrt{10}$

6 Students were asked to write a polynomial given the following conditions:

- the degree of the expression is 3
- the leading coefficient is 2
- the constant term is -6

Which expression satisfies all three conditions?

(1) $4x - 6 + 3x^2$ (3) $4 - 6x + 2x^3$

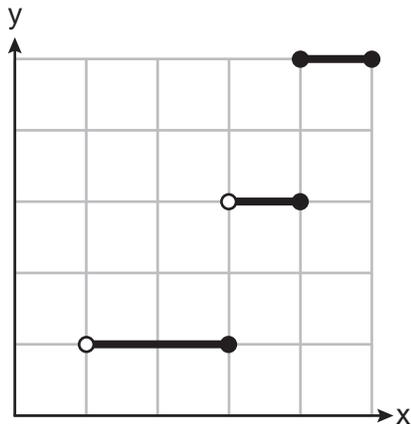(2) $3x^2 - 6x + 4$ (4) $4x^2 + 2x^3 - 6$

7 Which graph below represents a function?
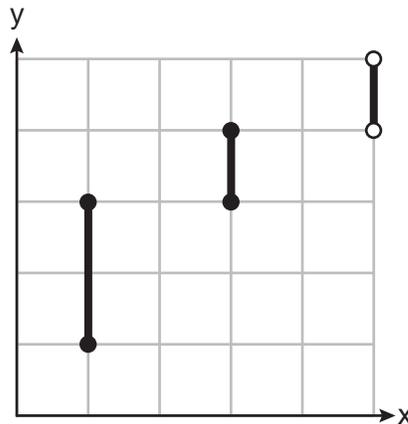

(1)

(3)

(2)

(4)

8 The following function models the value of a diamond ring, in dollars, t years after it is purchased:

$$v(t) = 500(1.08)^t$$

What was the original price of the ring, in dollars?

(1) $108   (3) $500

(2) $460   (4) $540

9 The formula for the surface area of a cylinder can be expressed as $S = 2\pi r^2 + 2\pi rh$, where r is the radius and h is the height of the cylinder. What is the height, h, expressed in terms of S, π, and r?

(1) $h = \dfrac{S - 2\pi r^2}{2\pi r}$

(3) $h = \dfrac{2\pi r^2 - S}{2\pi r}$

(2) $h = S - r$

(4) $h = r - S$

10 When solving the following system of equations algebraically, Mason used the substitution method.
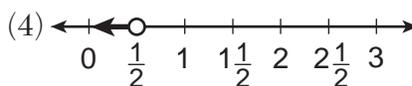
$$3x - y = 10$$
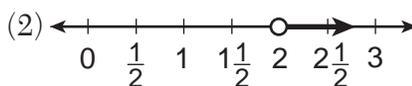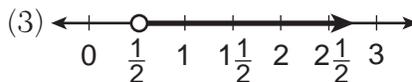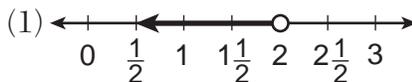$$2x + 5y = 1$$

Which equation could he have used?

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

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

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

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

11 Which graph represents the solution to the inequality $4 + 3x > 9 - 7x$?

(1)

(3)

(2)

(4)

12 When solving the equation $3(2x + 5) - 8 = 7x + 10$, the first step could be $3(2x + 5) = 7x + 18$. Which property justifies this step?

(1) addition property of equality

(2) commutative property of addition

(3) multiplication property of equality

(4) distributive property of multiplication over addition

13 Which table of values best models an exponential decay function?

x	f(x)
−2	7
−1	4
0	1
1	−2
2	−5
3	−8

(1)

m	f(m)
0	200
1	180
2	162
3	146
4	131
5	118

(2)

n	f(n)
0	200
0.5	210
1	220
1.5	231
2	242
2.5	254

(3)

p	f(p)
−3	−2
−2	−5
−1	−6
0	−5
1	−2
2	3

(4)

14 If $f(x) = \sqrt{x + 1} + 5$, then what is the value of $f(3)$?

(1) 9   (3) 3

(2) 7   (4) 10

15 Isabella wants to shift the graph of the function $f(x) = (x + 5)^2 - 2$ left 3 units. Which function represents the shifted graph?

(1) $g(x) = (x + 2)^2 - 2$ (3) $g(x) = (x + 5)^2 - 5$

(2) $g(x) = (x + 8)^2 - 2$ (4) $g(x) = (x + 5)^2 + 1$

16 What are the zeros of $f(x) = x(x^2 - 36)$?

   (1) 0, only   (3) 6 and -6, only

   (2) 6, only   (4) 0, 6, and -6

17 The point $(x, -6)$ lies on the graph of a parabola whose equation is $y = -x^2 - x + 6$. The value of x can be

   (1) -3 or 2   (3) 3, only

   (2) -4 or 3   (4) -4, only

18 The two-way frequency table below is a summary of concession stand sales for a football game.

Concession Stand Sales

	Soda	Water	Coffee	Total
Hot Dogs	50	62	46	158
Pizza	120	58	4	182
No Food	30	20	10	60
Total	200	140	60	400

Of the people making a purchase at the concession stand, what is the relative frequency of them buying pizza and a water?

   (1) 0.58   (3) 0.455

   (2) 0.35   (4) 0.145

19 When Theodore was driving in Canada, his speed was 104 kilometers per hour. Theodore was asked to convert his metric speed to a different rate, using the following conversion:

$$\frac{104 \text{ km}}{1 \text{ hr}} \bullet \frac{1 \text{ hr}}{60 \text{ min}} \bullet \frac{1 \text{ min}}{60 \text{ sec}} \bullet \frac{0.6214 \text{ mi}}{1 \text{ km}} \bullet \frac{5280 \text{ ft}}{1 \text{ mi}}$$

Assuming he did all the work correctly, what would the units be for Theodore's rate?

(1) feet per second   (3) seconds per foot

(2) feet per minute   (4) minutes per foot

20 Which expression is equivalent to $(-2x^2)^3$?

(1) $-2x^5$ (3) $-8x^5$

(2) $-2x^6$ (4) $-8x^6$

21 The table below shows the amount of a radioactive substance that remained for selected years.

Year	2000	2001	2005	2010	2014	2017	2019
Amount Remaining (grams)	750	450	219	85	25	12	8

To the *nearest tenth*, the average rate of change, in grams per year, from 2000 to 2014 is

(1) 39.1   (3) −39.1

(2) 51.8   (4) −51.8

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

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

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

23 Which equation has the same solution as $x^2 - 6x = 24$?

(1) $(x - 3)^2 = 24$ (3) $(x - 3)^2 = 33$

(2) $(x - 6)^2 = 24$ (4) $(x - 6)^2 = 60$

24 In a sequence, the first term is -2 and the common ratio is -3. The fourth term in this sequence is

(1) -162 (3) 24

(2) -11 (4) 54

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 for x:

$$14x = 3(1 + 2x) - 4x$$

26 Graph $f(x) = 3(2)^x$ over the interval $-1 \leq x \leq 2$.
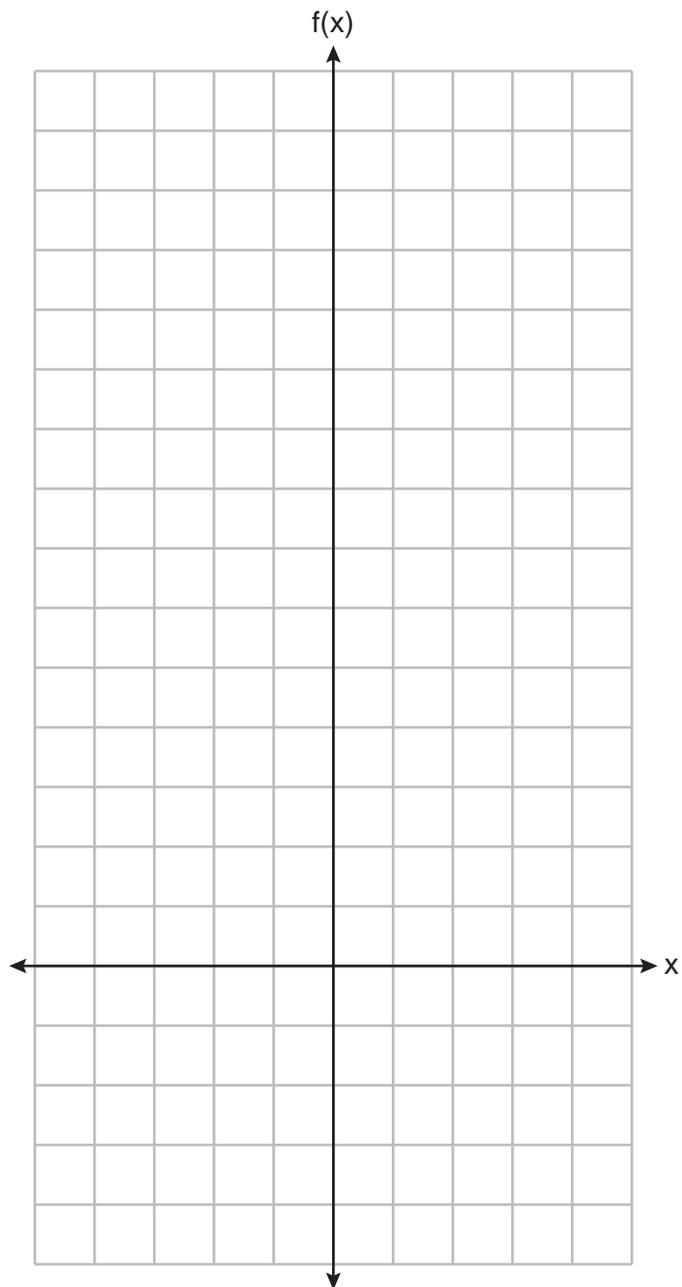
f(x)

x

27 Determine the product of $(2x + 3)$ and $(-6x^2 + 5x - 1)$.

Express the product in standard form.

28 A student's test scores for the semester are listed below.

$$83, \ 87, \ 90, \ 94, \ 94, \ 93, \ 95, \ 70, \ 72, \ 83, \ 85, \ 88, \ 98$$

Construct a box plot for this data set, using the number line below.
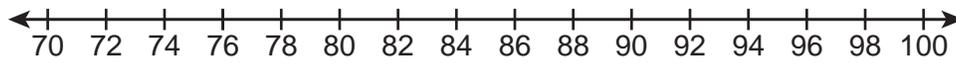
Student Test Scores

29 Write an equation, in slope-intercept form, of a line that passes through the point $(6, 3)$ and has a slope of $\frac{2}{3}$.

30 Abby has $20 to spend at a community festival. She uses $8.50 to purchase food coupons for popcorn, a hot dog, and a soda.

She can buy individual ride tickets for $2.25 each. Determine algebraically the maximum number of ride tickets Abby can buy.

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 A rocket was launched from the ground into the air at an initial velocity of 80 feet per second. The path of the rocket can be modeled by $h(t) = -16t^2 + 80t$, where t represents the time after the rocket has been launched, and $h(t)$ represents the height of the rocket.

Sketch the function on the set of axes below.
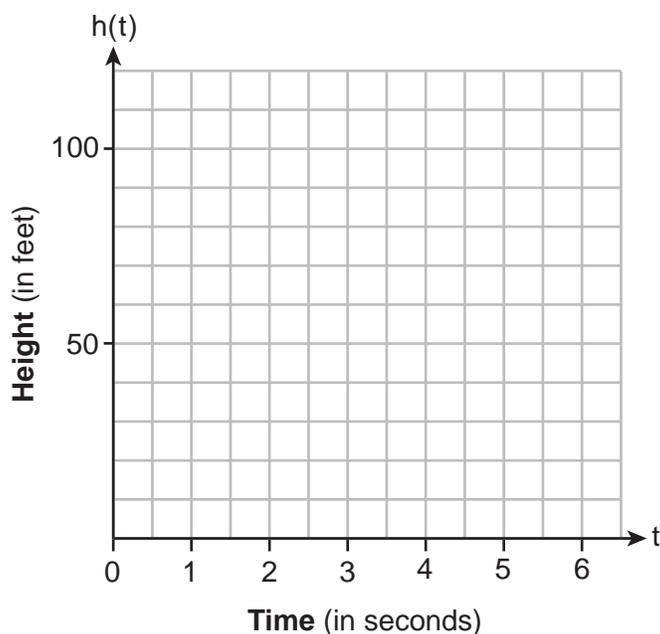
State how many seconds it will take for the rocket to reach its maximum height.

State the maximum height, in feet, of the rocket.

32 Use the quadratic formula to solve $2x^2 - 4x - 3 = 0$, and express the answer in simplest radical form.

33 The table below shows the ages of drivers and the annual cost of their car insurance.

Age (x) (in years)	16	17	18	18	21	22	30
Annual Cost of Car Insurance (y) (in dollars)	1452	1332	1284	1320	1200	1188	600

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

State the correlation coefficient of this line of best fit, to the *nearest hundredth*.

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

34 Solve the following system of inequalities graphically.

Label the solution set S.

$$2y \le x + 6$$
$$2x + y > 3$$
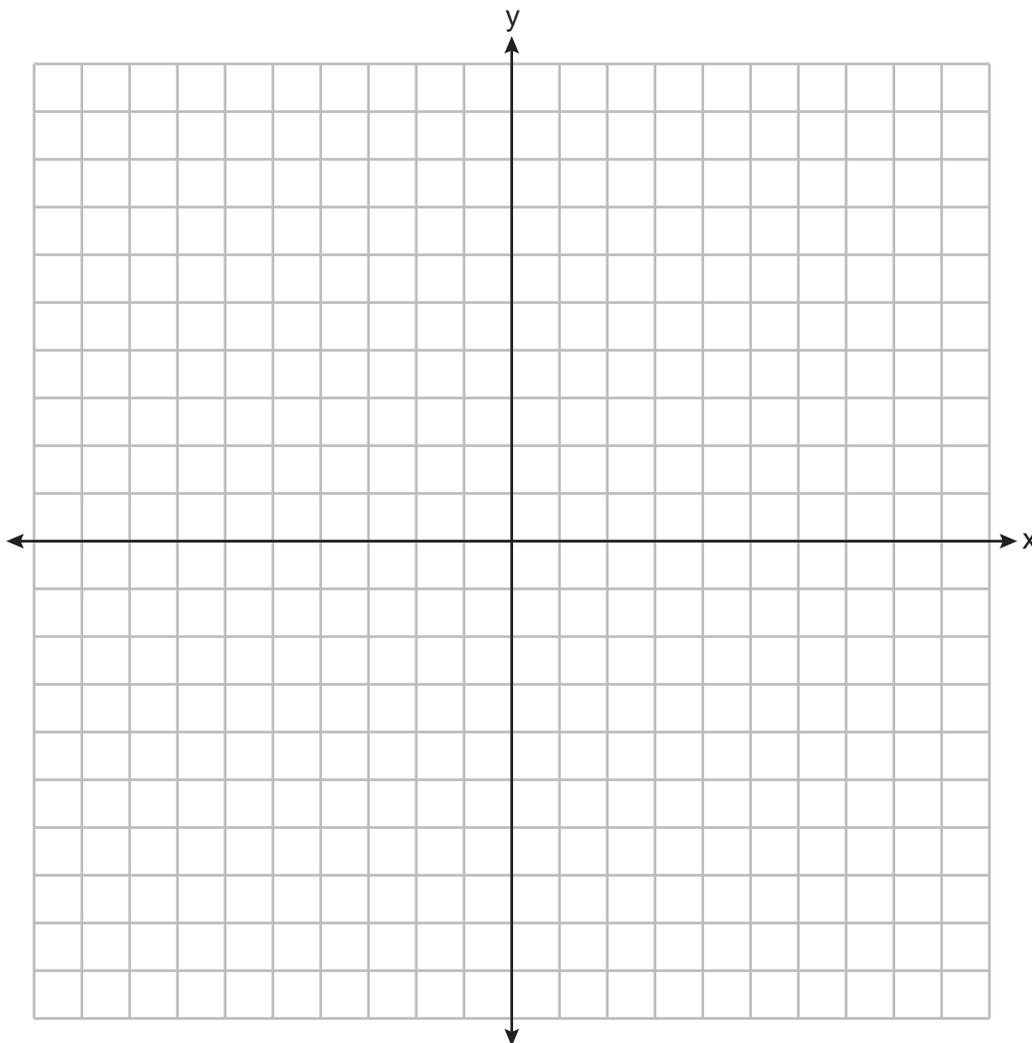
Is the point $(0, 3)$ in the solution set? Explain your answer.

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]

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If x represents the cost of one pair of running shoes and y represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.
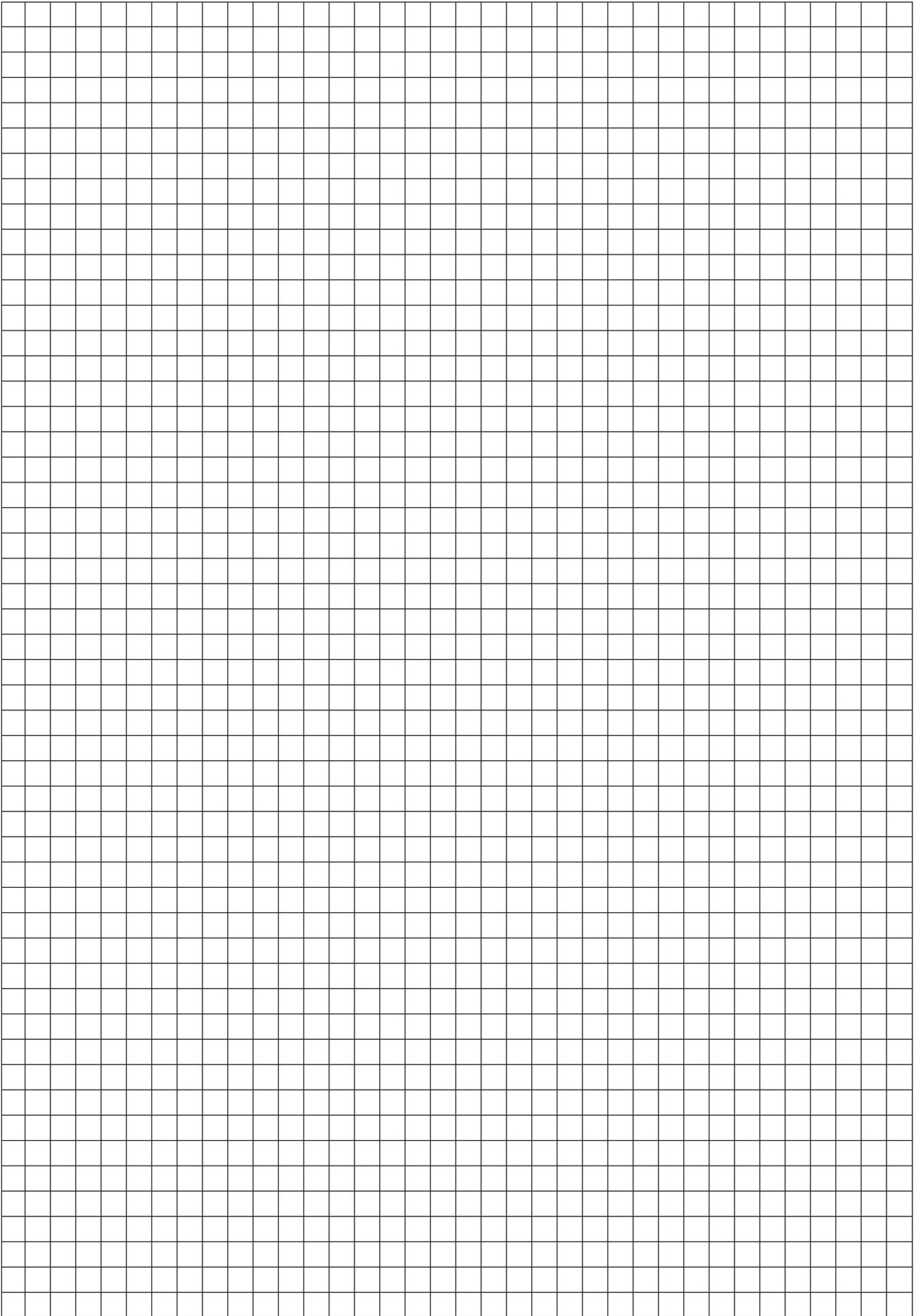
Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.
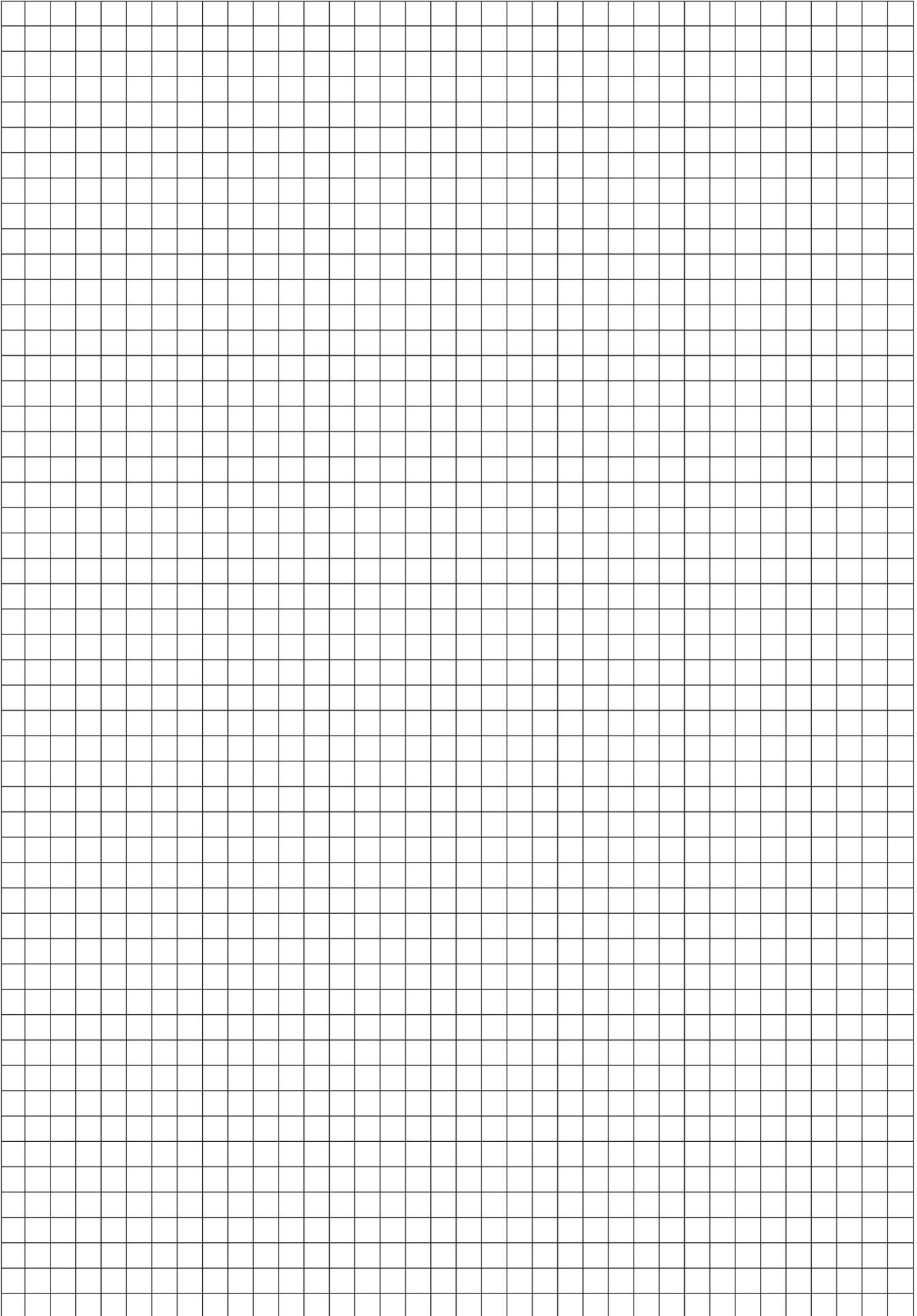
Reference Sheet for Algebra I

Conversions

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

Conversions Across Measurement Systems

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

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

ALGEBRA I

Printed on Recycled Paper

The State Education Department / The University of the State of New York
Regents Examination in Algebra I − January 2026
Scoring Key: Part I (Multiple-Choice Questions)

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

Regents Examination in Algebra I – January 2026
Scoring Key: Parts II, III, and IV (Constructed-Response Questions)

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

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

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

FOR TEACHERS ONLY

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

ALGEBRA I

Wednesday, January 21, 2026 — 1:15 to 4:15 p.m., only

RATING GUIDE

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

The Department is providing supplemental scoring guidance, the "Model Response Set," for the Regents Examination in Algebra I. This guidance is intended to be part of the scorer training. Schools should use the Model Response Set along with the rubrics in the Rating Guide to help guide scoring of student work. While not reflective of all scenarios, the model responses selected for the Model Response Set illustrate how less common student responses to constructed-response questions may be scored. The Model Response Set will be available on the Department's web site at https://www.nysedregents.org/algebraone/.

Mechanics of Rating

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

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

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

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

Raters should record the student's scores for all questions and the total raw score on the student's separate answer sheet. Then the student's total raw score should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: https://www.nysed.gov/state-assessment/high-school-regents-examinations on Wednesday, January 21, 2026. 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 *Directions for Scoring Regents Examinations*, 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]** $\frac{3}{12}$ or equivalent, 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] $\frac{3}{12}$, but no work is shown.

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

(26) **[2]** A correct graph over the given interval 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.

(27) **[2]** $-12x^3 - 8x^2 + 13x - 3$, and correct work is shown.

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

or

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

or

[1] Appropriate work is shown, but the product is not expressed in standard form.

or

[1] $-12x^3 - 8x^2 + 13x - 3$, but no work is shown.

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

(28) **[2]** A correct box plot is drawn with Min: 70, Q_1: 83, Q_2: 88, Q_3: 94, Max: 98.

[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] A correct five-number summary is indicated, but no further correct work is shown.

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

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

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

or

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

or

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

or

[1] -1, the y-intercept is found, but no further correct work is shown.

or

[1] $y = \frac{2}{3}x - 1$, but no work is shown.

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

(30) **[2]** 5, 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] A correct inequality is stated, but no further correct work is shown.

or

[1] 5, but a method other than algebraic is used.

or

[1] 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.

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 sketch is drawn, and 2.5 and 100 are stated.

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

[2] A correct sketch is graphed, but no further correct work is shown.

or

[2] Appropriate values are stated based on an incorrect sketch.

or

[2] 2.5 and 100 are stated, but the sketch is missing or incorrect.

[1] One appropriate value is stated, based on an incorrect sketch.

or

[1] 2.5 or 100 is stated, but no further correct work is shown.

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

(32) **[4]** $\dfrac{4 \pm 2\sqrt{10}}{4}$ or $\dfrac{2 \pm \sqrt{10}}{2}$ or $1 \pm \dfrac{\sqrt{10}}{2}$, and correct work is shown.

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

or

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

or

[3] $\dfrac{4 \pm 2\sqrt{10}}{4}$, but a method other than the quadratic formula is used.

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

or

[2] Appropriate work is shown to find $\dfrac{4 \pm \sqrt{40}}{4}$, but no further correct work is shown.

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

or

[1] $\dfrac{4 \pm 2\sqrt{10}}{4}$, 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.

(33) **[4]** $y = -56.97x + 2352.22$, -0.98, and strong is stated.

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

or

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

or

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

[2] $y = -56.97x + 2352.22$ is written, but no further correct work is shown.

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

or

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

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

(34) **[4]** Both inequalities are graphed correctly and at least one is labeled, the solution is labeled *S*, and a correct explanation indicating a negative response is written.

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

or

[3] Appropriate work is shown, but the solution is not labeled *S*.

or

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

or

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

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

[1] A correct explanation is written, but no further correct work is shown.

or

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

or

[1] $2y = x + 6$ and $2x + y = 3$ are graphed, 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.

(35) **[6]** $30x + 10y = 3700$, $15x + 20y = 3575$, a correct justification indicating a negative response is given, and correct algebraic work is shown to find $x = 85$ and $y = 115$.

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

or

[5] Appropriate work is shown, but only $x = 85$ or $y = 115$ is found.

or

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

or

[5] Appropriate work is shown, but a method other than algebraic is used to find $x = 85$ and $y = 115$.

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

or

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

[3] A correct system of equations is written, but a justification indicating a positive response is given based upon substitution in only the first equation, and no further correct work is shown.

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

or

[2] A correct justification indicating a negative response is given, but no further correct work is shown.

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

or

[1] $x = 85$ and $y = 115$, but no further work is shown.

[0] 85 and 115, but no work is shown.

or

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

Map to the Learning Standards
Algebra I
January 2026

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

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

The **Chart for Determining the Final Examination Score for the January 2026 Regents Examination in Algebra I** will be posted on the Department's web site at: https://www.nysed.gov/state-assessment/high-school-regents-examinations on the day of the examination. Conversion charts provided for previous administrations of the Regents Examination in Algebra I must NOT be used to determine students' final scores for this administration.

Online Submission of Teacher Evaluations of the Test to the Department

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

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

2. Click Regents Examinations.

3. Complete the required demographic fields.

4. Select the test title from the Regents Examination dropdown list.

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

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

ALGEBRA I

Wednesday, January 21, 2026 — 1:15 to 4:15 p.m., only

MODEL RESPONSE SET

Table of Contents

25 Solve the equation for *x*:

$$14x = 3(1 + 2x) - 4x$$

$$14x = 3(1 + 2x) - 4x$$

$$14x = 3 + 6x - 4x$$

$$14x = 3 + 2x$$

$$14x - 2x = 3$$

$$12x = 3$$

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

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

25 Solve the equation for x:

$$14x = 3(1 + 2x) - 4x$$

$14x = 3(1+2x) - 4x$

$14x = 3+6x - 4x$

$14x = 3+2x$

$\underline{-2x \qquad\qquad -2x}$

$\dfrac{12x}{12} = \dfrac{3}{12}$ $\qquad\qquad X = .25$

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

25 Solve the equation for x:

$$14x = 3(1 + 2x) - 4x$$

$$
\begin{array}{rcl}
-\ \ 14x &=& 3 + 6x - 4 \\
6x & & -6x \\
\hline
8x &=& 3 - 4 \\
\dfrac{8x}{8} &=& \dfrac{-1}{8} \\
\end{array}
$$

$$\boxed{x = -\dfrac{1}{8}}$$

Score 1: The student made a transcription error by writing 4 instead of 4x.

25 Solve the equation for *x*:

$$14x = 3(1 + 2x) - 4x$$

$$14x = 3(1+2x) - 4x$$
$$14x = 3 + 6x - 4x$$
$$14x = 3 + 2x$$
$$12x = 3$$

Score 1: The student did not divide by 12.

25 Solve the equation for x:

$$14x = 3(1 + 2x) - 4x$$

$$14x = 3(1+2x)-4x$$

$$14x = 3 + 6x - 4x$$

$$14x = 3 - 2x$$
$$-3 \quad -3$$
$$\overline{}$$
$$\frac{11x}{-2} = \frac{-2x}{-2}$$

$$x = -5.5$$

Score 0: The student made multiple errors.

25 Solve the equation for *x*:

$$14x = 3(1 + 2x) - 4x$$

$$14x = 3(1+2x)-4x$$

$$14x = 3 + 6x - 4x$$
$$+4x \quad 4x$$

$$14x = 3 + 10x$$
$$-10 \qquad -10$$

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

$$x = 1.3$$

Score 0: The student made multiple errors.

26 Graph $f(x) = 3(2)^x$ over the interval $-1 \le x \le 2$.

x	y
-1	1.5
0	3
1	6
2	12
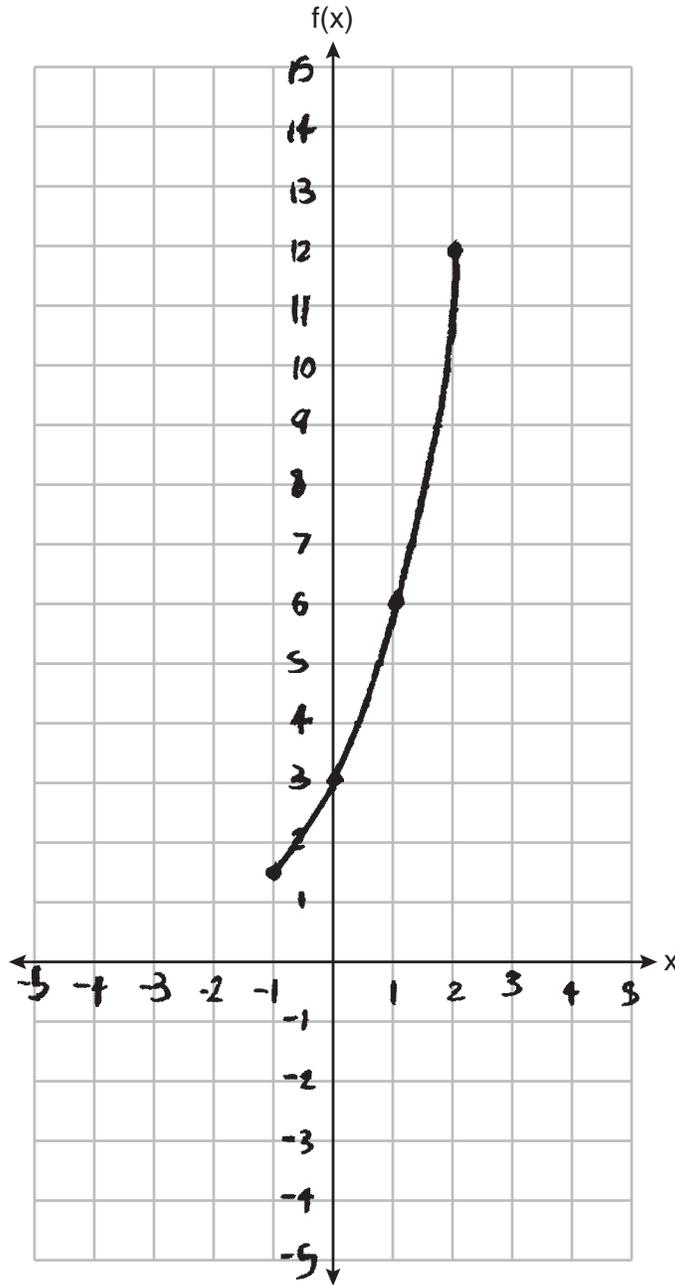
Score 2: The student gave a complete and correct response.

Question 26

26 Graph $f(x) = 3(2)^x$ over the interval $-1 \leq x \leq 2$.

Score 1: The student did not graph $f(x)$ over the correct interval.

26 Graph $f(x) = 3(2)^x$ over the interval $-1 \leq x \leq 2$.

$3(2)^x$

X	Y
-4	.1875
-3	.375
-2	.75
-1	1.5
0	3

f(x)

$-1 \leq x \leq 2$

X	4

Score 1: The student did not graph $f(x)$ over the correct interval.

26 Graph $f(x) = 3(2)^x$ over the interval $-1 \leq x \leq 2$.
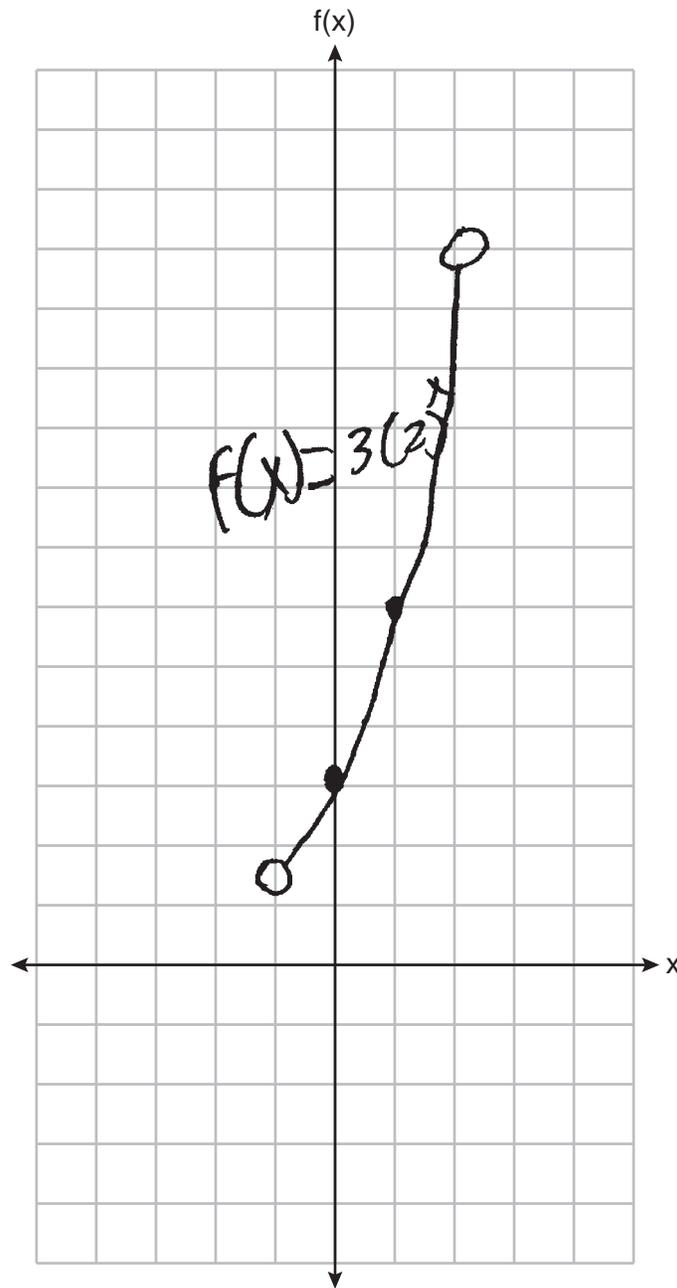
Score 1: The student did not include the endpoints.

26 Graph $f(x) = 3(2)^x$ over the interval $-1 \leq x \leq 2$.

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

26 Graph $f(x) = 3(2)^x$ over the interval $-1 \leq x \leq 2$.

Score 0: The student did not use the correct interval and made multiple graphing errors.

27 Determine the product of $(2x + 3)$ and $(-6x^2 + 5x - 1)$.

Express the product in standard form.

$$(2x+3)(-6x^2+5x-1)$$

$$-12x^3+10x^2-2x-18x^2+15x-3$$

$$-12x^3-8x^2+13x-3$$

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

27 Determine the product of $(2x + 3)$ and $(-6x^2 + 5x - 1)$.

Express the product in standard form.

$$-6x^2 \quad 5x - 1$$

	$-6x^2$	$5x$	-1
$2x$	$-12x^3$	$10x^2$	$-2x$
3	$-18x^2$	$15x$	-3

$$\left(-12x^3 - 8x^2 + 13x - 3\right)$$

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

27 Determine the product of $(2x + 3)$ and $(-6x^2 + 5x - 1)$.

Express the product in standard form.

$$(2x+3)(6x^2+5x-1)$$
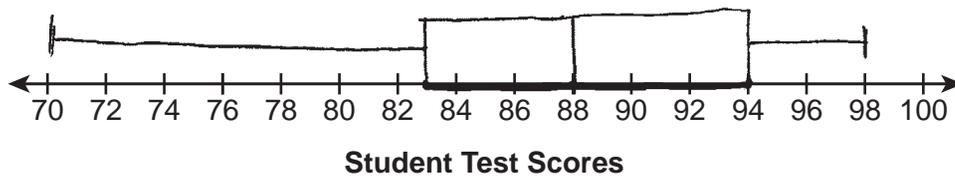$$12x^3+10x^2-2x+18x^2+15x-3$$
$$12x^3+28x^2+13x-3$$

Score 1: The student made a transcription error by using a positive $6x^2$.

27 Determine the product of $(2x + 3)$ and $(-6x^2 + 5x - 1)$.

Express the product in standard form.

$$(-6x^2 + 5x - 1) \cdot (2x + 3)$$

$$-12x^3 - 18x^2 + 10x + 15x - 2x - 3$$

$$10x + 15x = 25x$$
$$25x - 2x = 23x$$

$$-12x^3 - 18x^2 + 23x - 3 \quad \leftarrow \text{Ans}$$

Score 1: The student made one computational error when multiplying $5x \cdot 2x$.

27 Determine the product of $(2x + 3)$ and $(-6x^2 + 5x - 1)$.

Express the product in standard form.

$$(2x + 3) + (-6x^2 + 5x - 1)$$

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

Score 0: The student found the sum instead of the product and did not write the answer in standard form.

27 Determine the product of $(2x + 3)$ and $(-6x^2 + 5x - 1)$.

Express the product in standard form.

$$(2x+3)(-6x^2 +5x-1)$$

$$-12x^3+10x-2x -18x^2+15x-3$$

$$-12x^3 +23x-18x^2-3$$

Score 0: The student made one computational error and did not write the answer in standard form.

28 A student's test scores for the semester are listed below.

$$83, \ 87, \ 90, \ 94, \ 94, \ 93, \ 95, \ 70, \ 72, \ 83, \ 85, \ 88, \ 98$$

Construct a box plot for this data set, using the number line below.

Student Test Scores

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

28 A student's test scores for the semester are listed below.

$$83, \ 87, \ 90, \ 94, \ 94, \ 93, \ 95, \ 70, \ 72, \ 83, \ 85, \ 88, \ 98$$

Construct a box plot for this data set, using the number line below.

Student Test Scores

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

28 A student's test scores for the semester are listed below.

$$83, \ 87, \ 90, \ 94, \ 94, \ 93, \ 95, \ 70, \ 72, \ 83, \ 85, \ 88, \ 98$$

Construct a box plot for this data set, using the number line below.

Student Test Scores

$Q1 = 83$

$median = 88$

$Q3 = 94$

$minimum = 70$

$maximum = 98$

Score 1: The student wrote the correct five number summary.

28 A student's test scores for the semester are listed below.

83, 87, 90, 94, 94, 93, 95, 70, 72, 84, 87, 88, 98

70, 72, 83, 83, 85, 87, 88,   90, 93, 94, 94, 95, 98

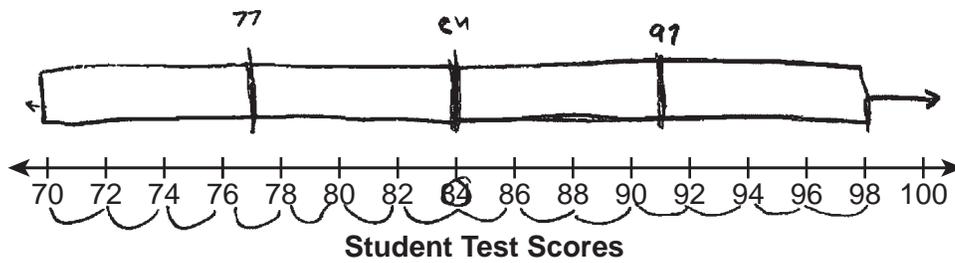Construct a box plot for this data set, using the number line below.

Student Test Scores
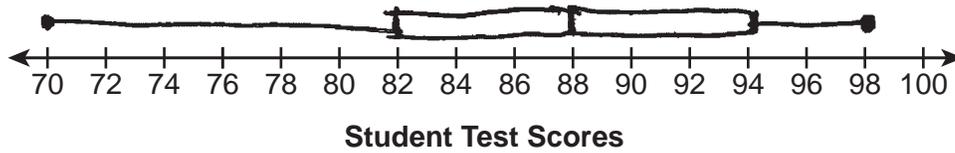
Score 1: The student used the wrong Q_1.

28 A student's test scores for the semester are listed below.

~~83~~, ~~85~~, ~~90~~, ~~94~~ ~~94~~, ~~98~~ ~~95~~, 70, ~~72~~, ~~83~~, ~~85~~, 88, 98

70, 72, 83, 83, 85, 87, 88, 90, 93, 94, 94, 95, 98
    1   2   3 4   5 6   7 8   9

Construct a box plot for this data set, using the number line below.
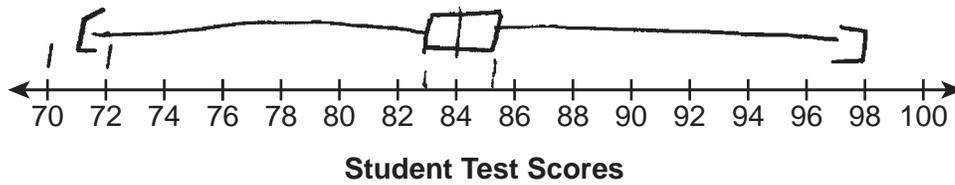

Student Test Scores

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

28 A student's test scores for the semester are listed below.

83, 87, 90, 94, 94, 93, 95, 70, 72, 83, 85, 88, 98

Construct a box plot for this data set, using the number line below.

Student Test Scores

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

29 Write an equation, in slope-intercept form, of a line that passes through the point (6, 3) and has a slope of $\frac{2}{3}$.

$$3 = \frac{2}{3}(6) + b$$

$$\begin{aligned} 3 &= 4 + b \\ -4 &\quad -4 \end{aligned}$$

$$b = -1$$

$$y = mx + b$$

$$\boxed{y = \frac{2}{3}x - 1}$$

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

29 Write an equation, in slope-intercept form, of a line that passes through the point (6, 3) and

has a slope of $\frac{2}{3}$.

$$y = mx + b$$

$$y - y_1 = m(x - x_1)$$
$$y - (3) = \frac{2}{3}(x - (6))$$
$$y - 3 = \frac{2}{3}(x - 6)$$
$$y - 3 = \frac{2}{3}x - 4$$
$$ + 3 \phantom{= \frac{2}{3}x} + 3$$
$$\boxed{y = \frac{2}{3}x - 1}$$

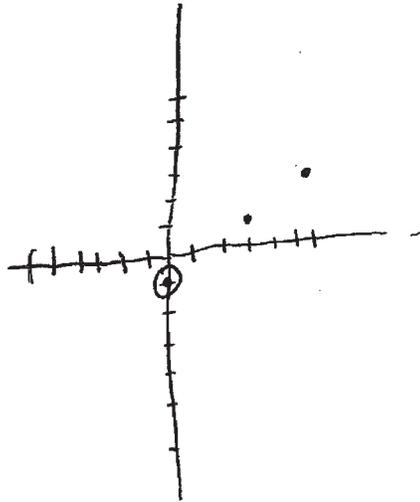**Score 2:** The student gave a complete and correct response.

29 Write an equation, in slope-intercept form, of a line that passes through the point $(6, 3)$ and

has a slope of $\frac{2}{3}$.

$$\frac{\Delta y}{\Delta x}$$

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

$$m = \frac{2}{3}$$

$$b = -1$$

$$(0,-1)$$

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

29 Write an equation, in slope-intercept form, of a line that passes through the point $(6, 3)$ and
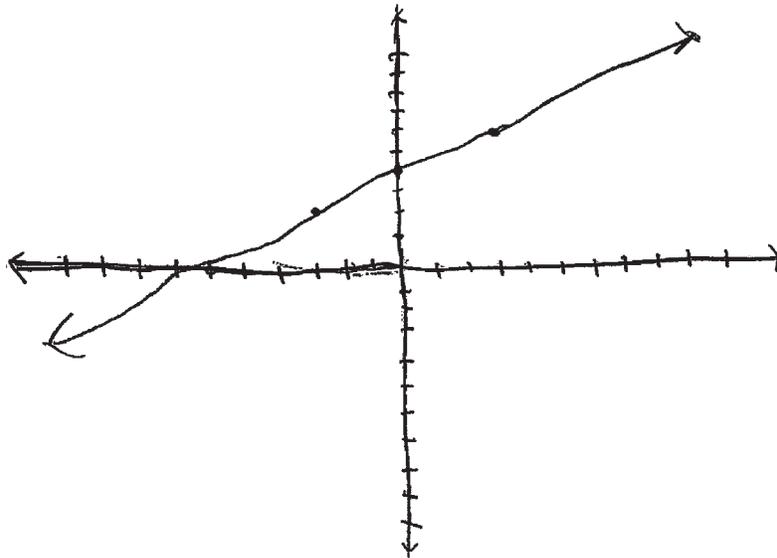
has a slope of $\frac{2}{3}$.

$$y = mx + b$$

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

Score 1: The student did not show any work.

29 Write an equation, in slope-intercept form, of a line that passes through the point $(6, 3)$ and has a slope of $\frac{2}{3}$.

$$Y = \frac{2}{3}x + 4$$

Score 1: The student graphed $(3, 6)$ instead of $(6, 3)$.

29 Write an equation, in slope-intercept form, of a line that passes through the point $(6, 3)$ and has a slope of $\frac{2}{3}$.

$$y = mx + b$$

$$y = \frac{2}{3}x + b$$

$$\boxed{3 = \frac{2}{3}(6) + b}$$

$$6 = x$$
$$3 = y$$
$$\frac{2}{3} = \text{slope}$$

Score 0: The student made a correct substitution into $y = mx + b$, but did not find $b = -1$.

29 Write an equation, in slope-intercept form, of a line that passes through the point (6, 3) and

has a slope of $\frac{2}{3}$.

$$Y - Y_1 = M(x - x_1) + Y_1 \quad \begin{matrix} x_1 & y_1 \\ (6, 3) \end{matrix}$$

$$+Y_1 \qquad \qquad x_2: 3 \quad +2 \; y_2$$

$$(9, 5)$$

$$\boxed{5 - 3 = \frac{2}{3}(9 - 6)}$$

$$= \boxed{2}$$

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

30 Abby has $20 to spend at a community festival. She uses $8.50 to purchase food coupons for popcorn, a hot dog, and a soda.

She can buy individual ride tickets for $2.25 each. Determine algebraically the maximum number of ride tickets Abby can buy.

Let x = tickets

$$8.50 + 2.25x \leq 20$$
$$-8.50 \qquad\qquad -8.50$$
$$2.25x \leq 11.5$$
$$\overline{2.25}$$
$$x \leq 5.1$$

She can buy 5 tickets

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

30 Abby has $20 to spend at a community festival. She uses $8.50 to purchase food coupons for popcorn, a hot dog, and a soda.

She can buy individual ride tickets for $2.25 each. Determine algebraically the maximum number of ride tickets Abby can buy.

$$\frac{11.5 = 2.25x}{2.25 \quad 2.25}$$

$$5.11 = x$$

She can buy a maximum of 5 tickets

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

30 Abby has $20 to spend at a community festival. She uses $8.50 to purchase food coupons for popcorn, a hot dog, and a soda.

She can buy individual ride tickets for $2.25 each. Determine algebraically the maximum number of ride tickets Abby can buy.

$$2.25x + 8.5 \neq 20$$
$$-8.5 \qquad -8.5$$

$$\frac{2.25x}{2.25} \neq \frac{11.5}{2.25}$$

$$x = 5.\overline{111}$$

She can buy 5 tickets

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

30 Abby has $20 to spend at a community festival. She uses $8.50 to purchase food coupons for popcorn, a hot dog, and a soda.

She can buy individual ride tickets for $2.25 each. Determine algebraically the maximum number of ride tickets Abby can buy.

$$20 \geq 2.25x + 8.50$$
$$-8.50 \qquad\qquad -8.50$$

$$\frac{11.50}{2.25} \geq \frac{2.25x}{2.25}$$

$$
\begin{array}{r}
\overset{1}{}\overset{9}{}\overset{10}{} \\
20\,\cancel{.00} \\
-\ 8.50 \\
\hline
11.50
\end{array}
$$

$$
\begin{array}{r}
000 \\
225\overline{\smash{)}1150}
\end{array}
$$

Score 1: The student wrote a correct inequality.

30 Abby has $20 to spend at a community festival. She uses $8.50 to purchase food coupons for popcorn, a hot dog, and a soda.

She can buy individual ride tickets for $2.25 each. Determine algebraically the maximum number of ride tickets Abby can buy.

$$\begin{array}{r} \overset{20}{8.50} \\ - \\ \hline \end{array}$$

$$\frac{11.5}{2.25} = 5.\overline{111}$$

she can buy 5 tickets.

Score 1: The student did not solve the problem algebraically.

30 Abby has $20 to spend at a community festival. She uses $8.50 to purchase food coupons for popcorn, a hot dog, and a soda.

She can buy individual ride tickets for $2.25 each. Determine algebraically the maximum number of ride tickets Abby can buy.

$$20 \geq 2.25x - 8.50$$
$$28.50 \geq 2.25x$$
$$12.6\overline{6} \geq x$$

12 rides

Score 1: The student wrote an incorrect inequality, but solved it appropriately.

30 Abby has $20 to spend at a community festival. She uses $8.50 to purchase food coupons for popcorn, a hot dog, and a soda.

She can buy individual ride tickets for $2.25 each. Determine algebraically the maximum number of ride tickets Abby can buy.

$$11.50$$
$$-\underline{2.25}$$
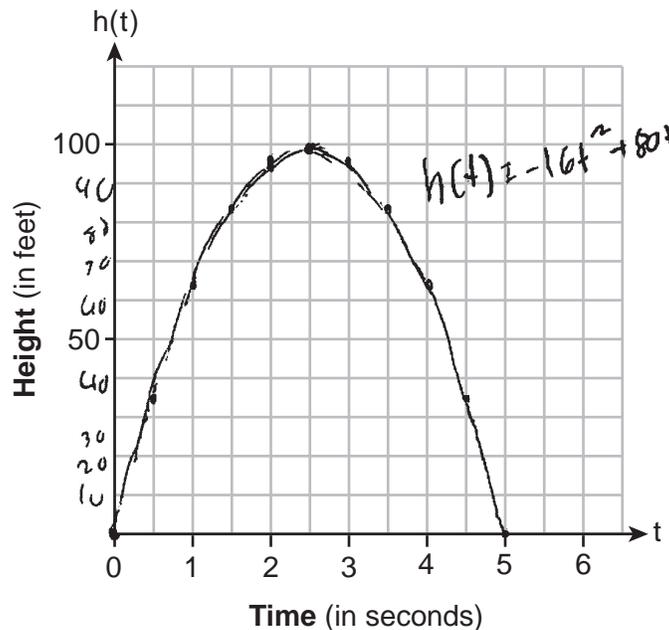$$9.25$$ Kept subtracting by 2.25

$$20 - 8.50 = 11.50$$

6 trickets

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

31 A rocket was launched from the ground into the air at an initial velocity of 80 feet per second. The path of the rocket can be modeled by $h(t) = -16t^2 + 80t$, where t represents the time after the rocket has been launched, and $h(t)$ represents the height of the rocket.

Sketch the function on the set of axes below.

State how many seconds it will take for the rocket to reach its maximum height.

2.5 seconds

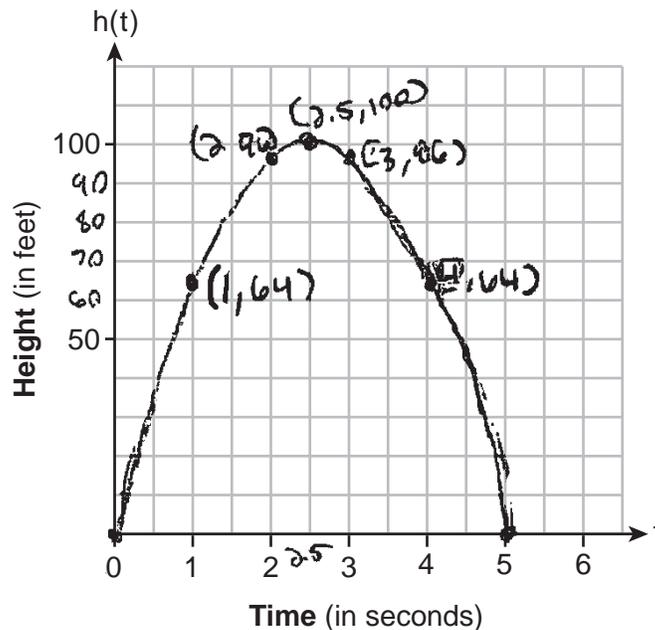State the maximum height, in feet, of the rocket.

100 ft.

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

31 A rocket was launched from the ground into the air at an initial velocity of 80 feet per second. The path of the rocket can be modeled by $h(t) = -16t^2 + 80t$, where t represents the time after the rocket has been launched, and $h(t)$ represents the height of the rocket.

Sketch the function on the set of axes below.

t	h(t)
O	O
1	64
2	96
2.5	100
3	96
4	64
5	0.

h(t)

Height (in feet)

(2.5, 100)
(2, 96)
(3, 96)
(1, 64)
(4, 64)

100
90
80
70
60
50

0   1   2 2.5 3   4   5   6   →t

Time (in seconds)

State how many seconds it will take for the rocket to reach its maximum height.

It will take 2.5 seconds for the rocket to reach its max height of 100 feet.

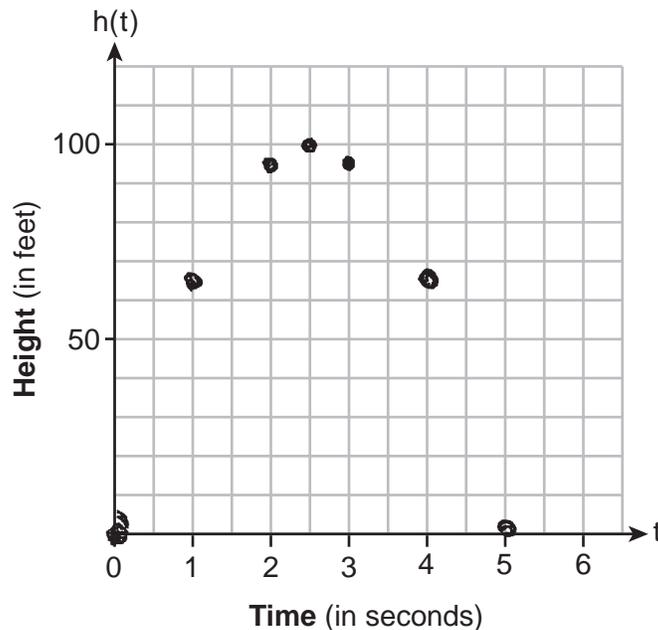State the maximum height, in feet, of the rocket.

The max height is 100 feet.

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

31 A rocket was launched from the ground into the air at an initial velocity of 80 feet per second. The path of the rocket can be modeled by $h(t) = -16t^2 + 80t$, where t represents the time after the rocket has been launched, and $h(t)$ represents the height of the rocket.

Sketch the function on the set of axes below.

State how many seconds it will take for the rocket to reach its maximum height.

$$2.5 \text{ seconds}$$

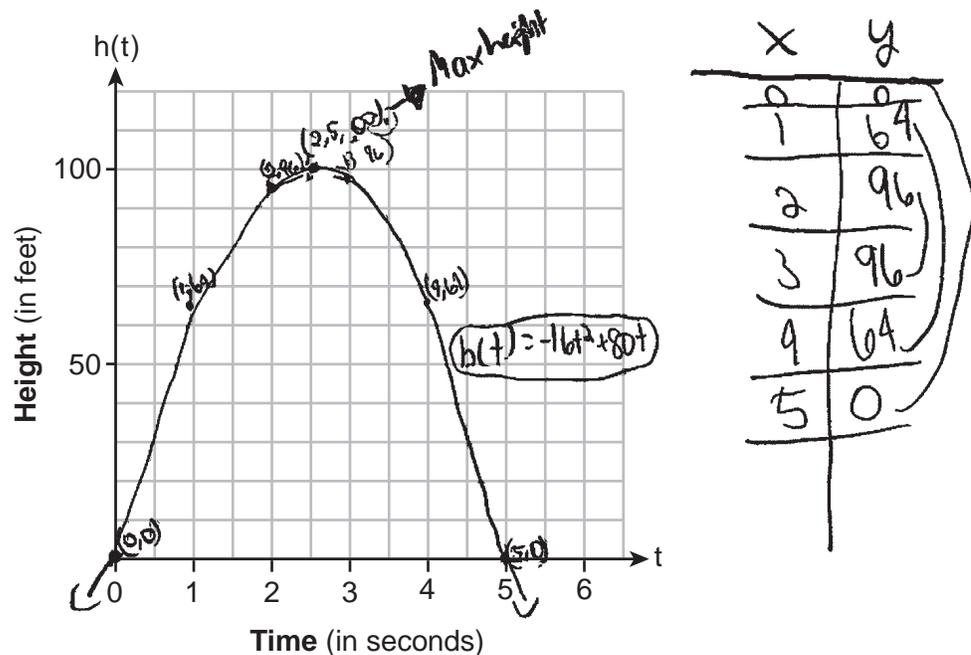State the maximum height, in feet, of the rocket.

$$100 \text{ feet}$$

Score 3: The student did not complete the parabola.

31 A rocket was launched from the ground into the air at an initial velocity of 80 feet per second. The path of the rocket can be modeled by $h(t) = -16t^2 + 80t$, where t represents the time after the rocket has been launched, and $h(t)$ represents the height of the rocket.

Sketch the function on the set of axes below.

State how many seconds it will take for the rocket to reach its maximum height.

It will take 2.5 seconds for the rocket to reach its maximum height.
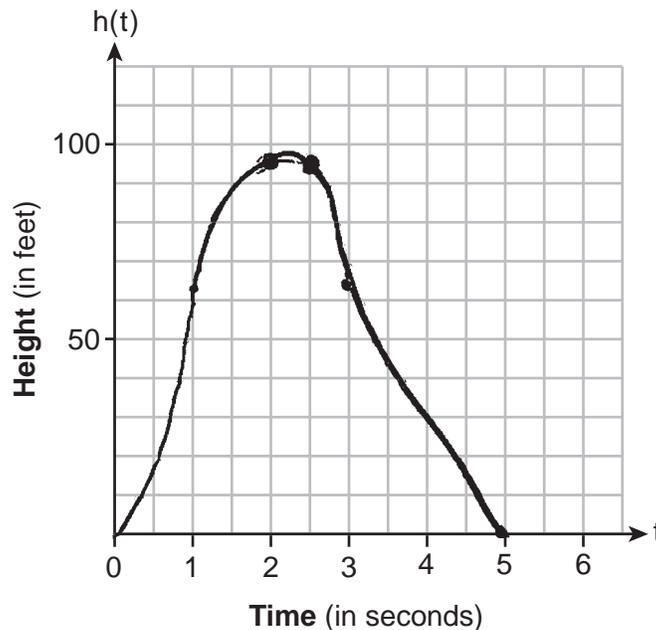
State the maximum height, in feet, of the rocket.

The maximum height of the rocket is 100 feet.

Score 3: The student drew arrows on the graph to continue beyond quadrant 1.

31 A rocket was launched from the ground into the air at an initial velocity of 80 feet per second. The path of the rocket can be modeled by $h(t) = -16t^2 + 80t$, where t represents the time after the rocket has been launched, and $h(t)$ represents the height of the rocket.

Sketch the function on the set of axes below.

$h(t) = -16t^2 + 80t$

h(t)

Height (in feet)

100

50

0   1   2   3   4   5   6   t

Time (in seconds)

State how many seconds it will take for the rocket to reach its maximum height. $X = \frac{-b}{2a}$

$h(t) = -16(2.5)^2 + 80(2.5)$

$h(t) = 100$

$X = \frac{-80}{2(-16)}$ $X = \frac{-80}{-32}$ $X = 2.5$

It will take 2.5 seconds for the rocket to reach its maximum height

State the maximum height, in feet, of the rocket.
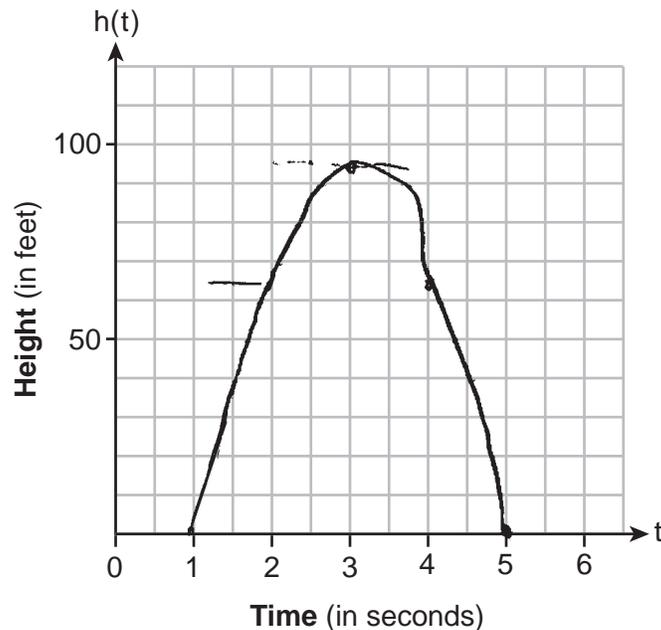
The maximum height in feet is 100 feet.

Score 2: The student only stated 2.5 and 100 correctly.

31 A rocket was launched from the ground into the air at an initial velocity of 80 feet per second. The path of the rocket can be modeled by $h(t) = -16t^2 + 80t$, where t represents the time after the rocket has been launched, and $h(t)$ represents the height of the rocket.

Sketch the function on the set of axes below.

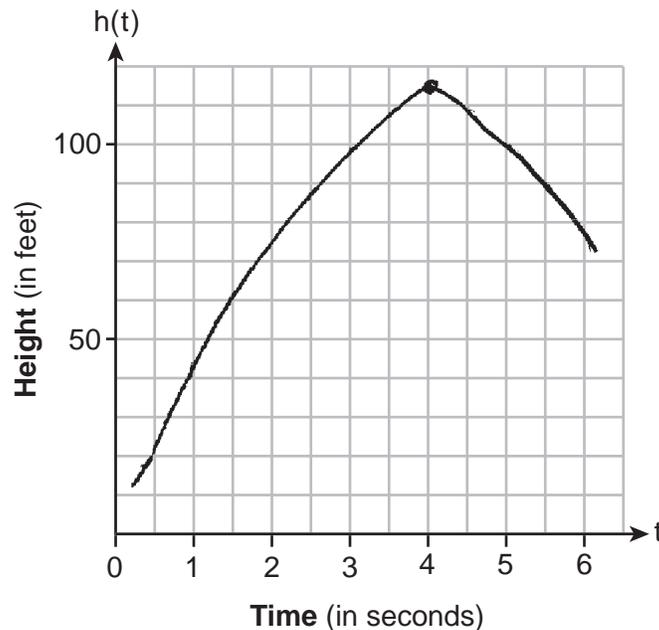State how many seconds it will take for the rocket to reach its maximum height.

2.5   Seconds

State the maximum height, in feet, of the rocket.

Score 1:   The student stated 2.5 correctly.

31 A rocket was launched from the ground into the air at an initial velocity of 80 feet per second. The path of the rocket can be modeled by $h(t) = -16t^2 + 80t$, where t represents the time after the rocket has been launched, and $h(t)$ represents the height of the rocket.

Sketch the function on the set of axes below.

h(t)

Height (in feet)

100

50

0   1   2   3   4   5   6

t

Time (in seconds)

State how many seconds it will take for the rocket to reach its maximum height.

$$h(t) = -16t^2 + 80t$$
$$= 16(4)^2 + 80(4)$$
$$= 256 + 320$$

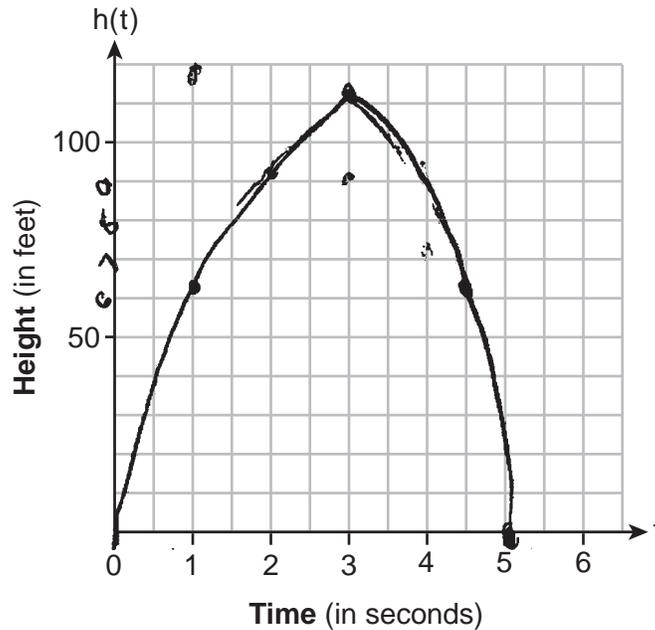4 seconds

State the maximum height, in feet, of the rocket.

256 feet

Score 1: The student appropriately stated 4 seconds, based on their graph.

31 A rocket was launched from the ground into the air at an initial velocity of 80 feet per second. The path of the rocket can be modeled by $h(t) = -16t^2 + 80t$, where t represents the time after the rocket has been launched, and $h(t)$ represents the height of the rocket.

Sketch the function on the set of axes below.

State how many seconds it will take for the rocket to reach its maximum height.

$-16(2)^2 + 80(2)$ $-16(4)^2 + 80(4)$ $-16(5)^2 + 80(5)$

$-32 + 160$ $-256 \, 320$ $-400 + 400$

128 64 0

$\dfrac{-16t^2 + 80t = 0}{8}$

$\dfrac{-2t^2 + 10 = 10}{2}$

$-t^2 + 5 = 0$

5 secounds

State the maximum height, in feet, of the rocket.

96 ft

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

32 Use the quadratic formula to solve $2x^2 - 4x - 3 = 0$, and express the answer in simplest radical form.

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

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

$A = 2$
$B = -4$
$C = -3$

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

$$x = \frac{4 \pm \sqrt{16 + 24}}{4}$$

$$x = \frac{4 \pm \sqrt{40}}{4}$$

$$x = \frac{4 \pm \sqrt{40}}{4} \rightarrow \sqrt{40} \rightarrow \sqrt{4} \cdot \sqrt{10}$$

$$2\sqrt{10} \qquad 2 \cdot \sqrt{10}$$

$$\boxed{x = \frac{4 \pm 2\sqrt{10}}{4}}$$

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

Question 32

32 Use the quadratic formula to solve $2x^2 - 4x - 3 = 0$, and express the answer in simplest radical form.

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

$$X = \frac{4 \pm \sqrt{40}}{4}$$

$$\sqrt{40}$$

$$\sqrt{4} \quad \sqrt{10}$$

$$2\sqrt{10}$$

$$\frac{4 \pm 2\sqrt{10}}{4}$$

$$1 + \frac{1}{2}\sqrt{10}$$

$$1 - \frac{1}{2}\sqrt{10}$$

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

32 Use the quadratic formula to solve $2x^2 - 4x - 3 = 0$, and express the answer in simplest radical form.

$$a = 2$$

$$b = -4$$

$$c = -3$$

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

$$x = \frac{(4) \pm \sqrt{8}}{4} \quad \overset{\textcircled{4}}{2} \quad 2\sqrt{2}$$

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

Score 3: The student did not square -4 correctly.

32 Use the quadratic formula to solve $2x^2 - 4x - 3 = 0$, and express the answer in simplest radical form.

$$2x^2 - 4x - 3 = 0$$
$$a = 2 \quad b = -4 \quad c = 3$$
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$
$$x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(2)(-3)}}{2(2)}$$
$$x = \frac{4 \pm \sqrt{40}}{4}$$
$$x = \frac{4 \pm \sqrt{4}\sqrt{10}}{4}$$
$$x = \frac{4 \pm 2\sqrt{10}}{4}$$
$$x = 1 \pm 2\sqrt{10}$$

Score 3: The student made one simplification error.

32 Use the quadratic formula to solve $2x^2 - 4x - 3 = 0$, and express the answer in simplest radical form.

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

$a = 2$
$b = -4$
$c = -3$

$$= \frac{4 \pm \sqrt{40}}{4}$$

$$= 4 \pm \sqrt{8 \cdot 5}$$

$$\sqrt{8} \cdot \sqrt{5}$$

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

$$2\sqrt{2} \cdot \sqrt{5}$$

$$2\sqrt{10}$$

$$= \frac{4 \pm 2\sqrt{10}}{4}$$

$$\frac{4 + 2\sqrt{10}}{4} = 2.58113883$$

$$\frac{4 - 2\sqrt{10}}{4} = -.5811388301$$

Score 3: The student converted the correct answers to a decimal.

32 Use the quadratic formula to solve $2x^2 - 4x - 3 = 0$, and express the answer in simplest radical form.

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \qquad \begin{array}{l} a = 2 \\ b = -4 \\ c = -3 \end{array}$$

$$= \frac{4 \pm \sqrt{16 + 24}}{4}$$

$$= \frac{4 \pm \sqrt{40}}{4}$$

$$= 1 \pm \frac{\sqrt{40}}{4}$$

Score 2: The student did not simplify the radical.

32 Use the quadratic formula to solve $2x^2 - 4x - 3 = 0$, and express the answer in simplest radical form.

$a = 2 \quad b = -4 \quad c = -3$

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

$$\frac{4 \pm \sqrt{40}}{4} \rightarrow \frac{4 \pm \sqrt{8}\sqrt{5}}{4} \rightarrow \frac{4 \pm \sqrt{4}\sqrt{5}}{4} \rightarrow \frac{4 \pm 2\sqrt{5} \div 2}{4 \div 2} \rightarrow \frac{8 \pm \sqrt{5}}{8} \rightarrow 1 \pm 5$$

Score 2: The student found $\dfrac{4 \pm \sqrt{40}}{4}$, but no further correct work is shown.

32 Use the quadratic formula to solve $2x^2 - 4x - 3 = 0$, and express the answer in simplest radical form.

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

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

$$x = \frac{4 \pm 40}{4}$$

$$x = 1 \pm 10$$

$-16 - 8$
$-24 + 12$
-12

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

32 Use the quadratic formula to solve $2x^2 - 4x - 3 = 0$, and express the answer in simplest radical form.

The variables are labeled: a over $2x^2$, b over $4x$, c over 3.

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

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

$$X = -.5811388301 \qquad X = 2.58113883$$

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

32 Use the quadratic formula to solve $2x^2 - 4x - 3 = 0$, and express the answer in simplest radical form.

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

$a = 2$
$b = -4$
$c = -3$
$x = 0$

$$(0 = \frac{4 \pm \sqrt{16 + (4)(2)(-3)}}{4}$$

$$0 = \frac{4 \pm \sqrt{8}}{4}$$

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

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

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

33 The table below shows the ages of drivers and the annual cost of their car insurance.

Age (x) (in years)	16	17	18	18	21	22	30
Annual Cost of Car Insurance (y) (in dollars)	1452	1332	1284	1320	1200	1188	600

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

$$y = -56.97x + 2352.22$$

State the correlation coefficient of this line of best fit, to the *nearest hundredth*.

$$-0.98$$

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

its a strong negative.

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

33 The table below shows the ages of drivers and the annual cost of their car insurance.

Age (x) (in years)	16	17	18	18	21	22	30
Annual Cost of Car Insurance (y) (in dollars)	1452	1332	1284	1320	1200	1188	600

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

$$Y = ax + b$$

$$Y = -56.97X + 2,352.22$$

State the correlation coefficient of this line of best fit, to the *nearest hundredth*.

$$-.98$$

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

It States it is a Strong correlation
Coefficient because it is close to
-1.

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

33 The table below shows the ages of drivers and the annual cost of their car insurance.

Age (x) (in years)	16	17	18	18	21	22	30
Annual Cost of Car Insurance (y) (in dollars)	1452	1332	1284	1320	1200	1188	600

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

$$Y = ax + b$$

$$a = -56.96881497 \approx -56.97$$

$$b = 2352.224532 \approx 2352.22$$

$$\boxed{Y = -56.97x + 2352.22}$$

State the correlation coefficient of this line of best fit, to the *nearest hundredth*.

$$r = -0.98207650711 \approx -0.98$$

$$\boxed{r = -0.98}$$

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

The correlation coefficient represents that as the age in years increases, the annual cost of car insurance decreases.

Score 3:   The student did not state the strength of the linear fit.

33 The table below shows the ages of drivers and the annual cost of their car insurance.

Age (x) (in years)	16	17	18	18	21	22	30
Annual Cost of Car Insurance (y) (in dollars)	1452	1332	1284	1320	1200	1188	600

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

$a = -56.96881497$ $a = -56.97$

$b = 2352.274532$ $b = 2352.28$

$y = -56.97x + 2352.22$

State the correlation coefficient of this line of best fit, to the *nearest hundredth.*

$r^2 = .9444142654$

$\boxed{r^2 = .97}$

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

There is a strong Positive correlation between age and cost of car insurance.

Score 3: The student did not state the correct *r* value.

33 The table below shows the ages of drivers and the annual cost of their car insurance.

Age (x) (in years)	16	17	18	18	21	22	30
Annual Cost of Car Insurance (y) (in dollars)	1452	1332	1284	1320	1200	1188	600

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

$$-56.97x + 2352.22$$

State the correlation coefficient of this line of best fit, to the *nearest hundredth*.

$$-0.98$$

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

This correlation coefficient indicates that the data shown above has a strong negitive correlation.

Score 3:　The student did not write an equation.

33 The table below shows the ages of drivers and the annual cost of their car insurance.

Age (x) (in years)	16	17	18	18	21	22	30
Annual Cost of Car Insurance (y) (in dollars)	1452	1332	1284	1320	1200	1188	600

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

$$-56.97x + 2352.22$$

State the correlation coefficient of this line of best fit, to the *nearest hundredth*.

20.29

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

The linear fit is strong

Score 2: The student did not write an equation and stated an incorrect *r* value.

33 The table below shows the ages of drivers and the annual cost of their car insurance.

Age (x) (in years)	16	17	18	18	21	22	30
Annual Cost of Car Insurance (y) (in dollars)	1452	1332	1284	1320	1200	1188	600

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

$$y = ax + b$$
$$a = -56.97$$
$$b = 2352.22$$

State the correlation coefficient of this line of best fit, to the *nearest hundredth*.

$$1.0$$

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

the coefficien will be close to 1.

Score 2:   The student wrote the correct linear regression equation.

33 The table below shows the ages of drivers and the annual cost of their car insurance.

Age (x) (in years)	16	17	18	18	21	22	30
Annual Cost of Car Insurance (y) (in dollars)	1452	1332	1284	1320	1200	1188	600

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

$$y = -57x + 2352.2$$

$$r =$$

State the correlation coefficient of this line of best fit, to the *nearest hundredth*.

.98

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

The cofelation coefficent is a Strong Liher fit.

Score 1: The student only stated strong.

33 The table below shows the ages of drivers and the annual cost of their car insurance.

Age (x) (in years)	16	17	18	18	21	22	30
Annual Cost of Car Insurance (y) (in dollars)	1452	1332	1284	1320	1200	1188	600

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

$$-56.97x + 2352.22$$

State the correlation coefficient of this line of best fit, to the *nearest hundredth*.

$$r = -.982$$

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

Score 1:   The student wrote an expression instead of an equation.

33 The table below shows the ages of drivers and the annual cost of their car insurance.

Age (x) (in years)	16	17	18	18	21	22	30
Annual Cost of Car Insurance (y) (in dollars)	1452	1332	1284	1320	1200	1188	600

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

$$y = -56.9088x + 2352.22$$

State the correlation coefficient of this line of best fit, to the *nearest hundredth*.

$$-0.982$$

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

the more the car
has in years the
less its worth.

Score 1: The student made a rounding error when writing the linear regression equation.

33 The table below shows the ages of drivers and the annual cost of their car insurance.

Age (x) (in years)	16	17	18	18	21	22	30
Annual Cost of Car Insurance (y) (in dollars)	1452 1500	1332 1300	1284 1300	1320 1300	1200 1200	1188 1200	600 600

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

1500, 13,00,1300, 1300, 1200, 1200, 600

State the correlation coefficient of this line of best fit, to the *nearest hundredth*.

1300

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

That the higer it gets the less it costs.

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

33 The table below shows the ages of drivers and the annual cost of their car insurance.

Age (x) (in years)	16	17	18	18	21	22	30
Annual Cost of Car Insurance (y) (in dollars)	1452	1332	1284	1320	1200	1188	600

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

$-56.969x + 2352.$

State the correlation coefficient of this line of best fit, to the *nearest hundredth*.

Strong positive

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

Weak positive

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

Question 34

34 Solve the following system of inequalities graphically.
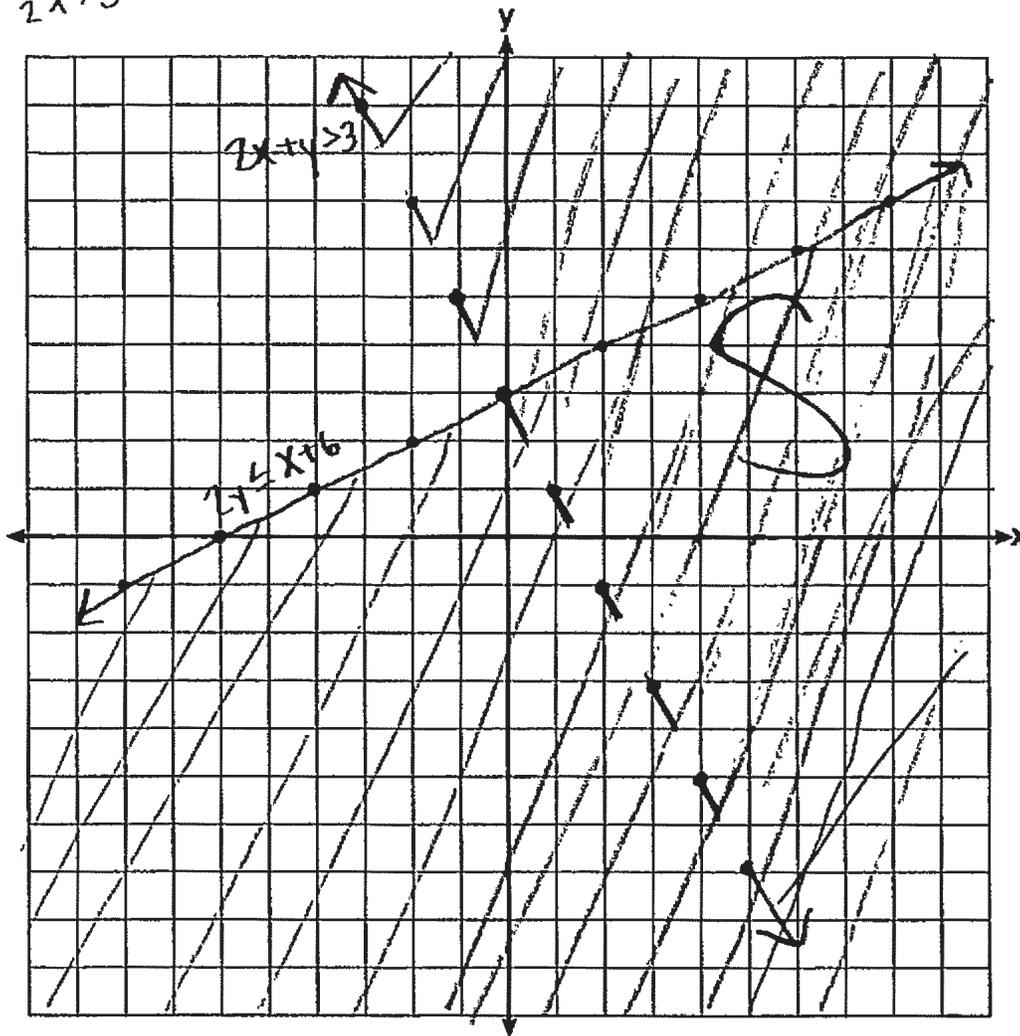
Label the solution set *S*.

$$y \leq \frac{1}{2}x + 3$$

$$2y \leq x + 6$$

$$\cancel{2y \leq x + 6}$$

$$2x + y > 3$$

$$y \leq \frac{1}{2}x + 3$$

$$y > 3 - 2x$$

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

X	Y
-3	9
-2	7
-1	5
0	3
1	1
2	-1
3	-3

$$2x + y > 3$$

$$2y \leq x + 6$$

Is the point (0, 3) in the solution set? Explain your answer.

(0,3) is not in the solution set because it is graphed on a dotted line.

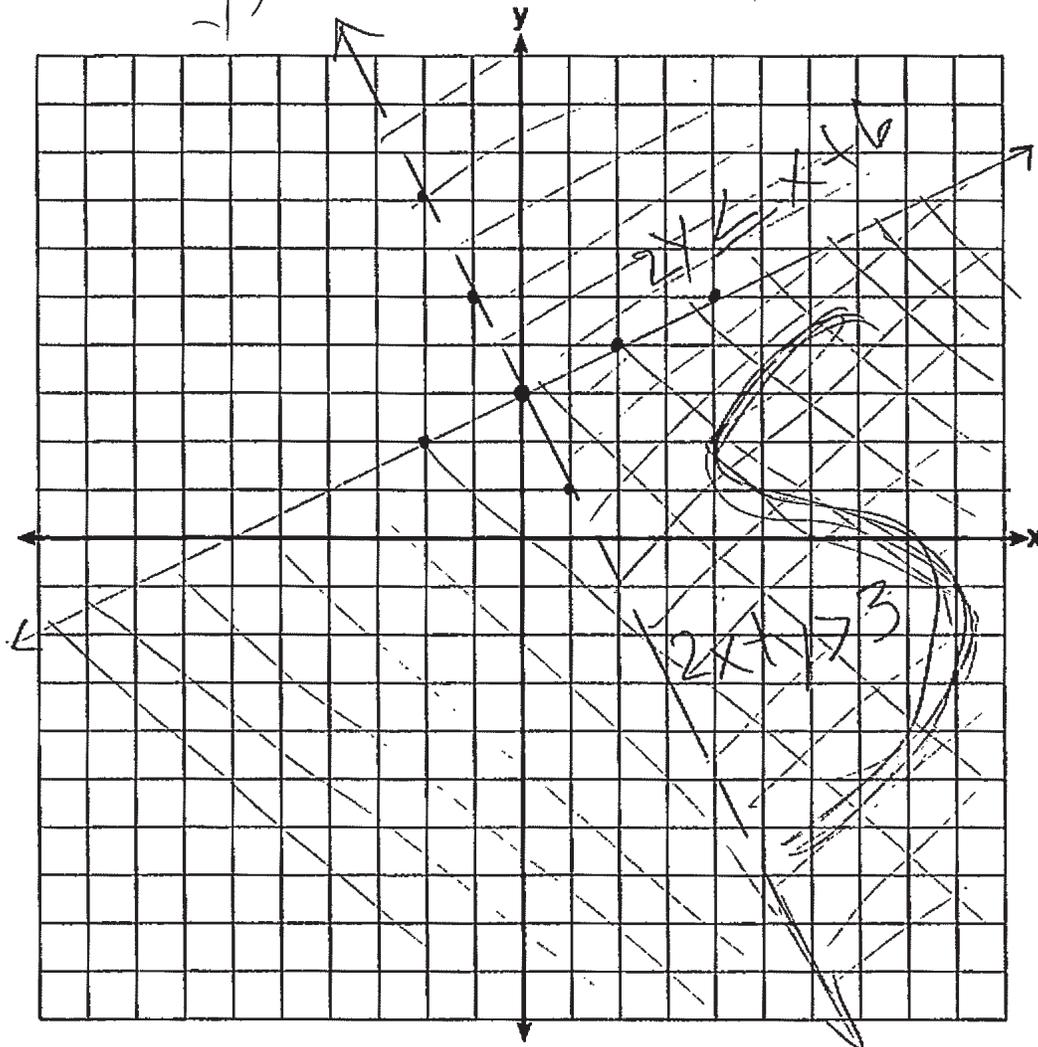**Score 4:** The student gave a complete and correct response.

34 Solve the following system of inequalities graphically.

Label the solution set *S*.

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

$-2x + y > 3x + 13$

$-17 - 2x + 3$

$2y \le x + 6$

$2x + y > 3$

$\frac{2y}{2} \le x + \frac{6}{2}$

$y \le \frac{1}{2}x + 3$

Is the point (0, 3) in the solution set? Explain your answer.

(0,3) is a solution because it is on the solid line.

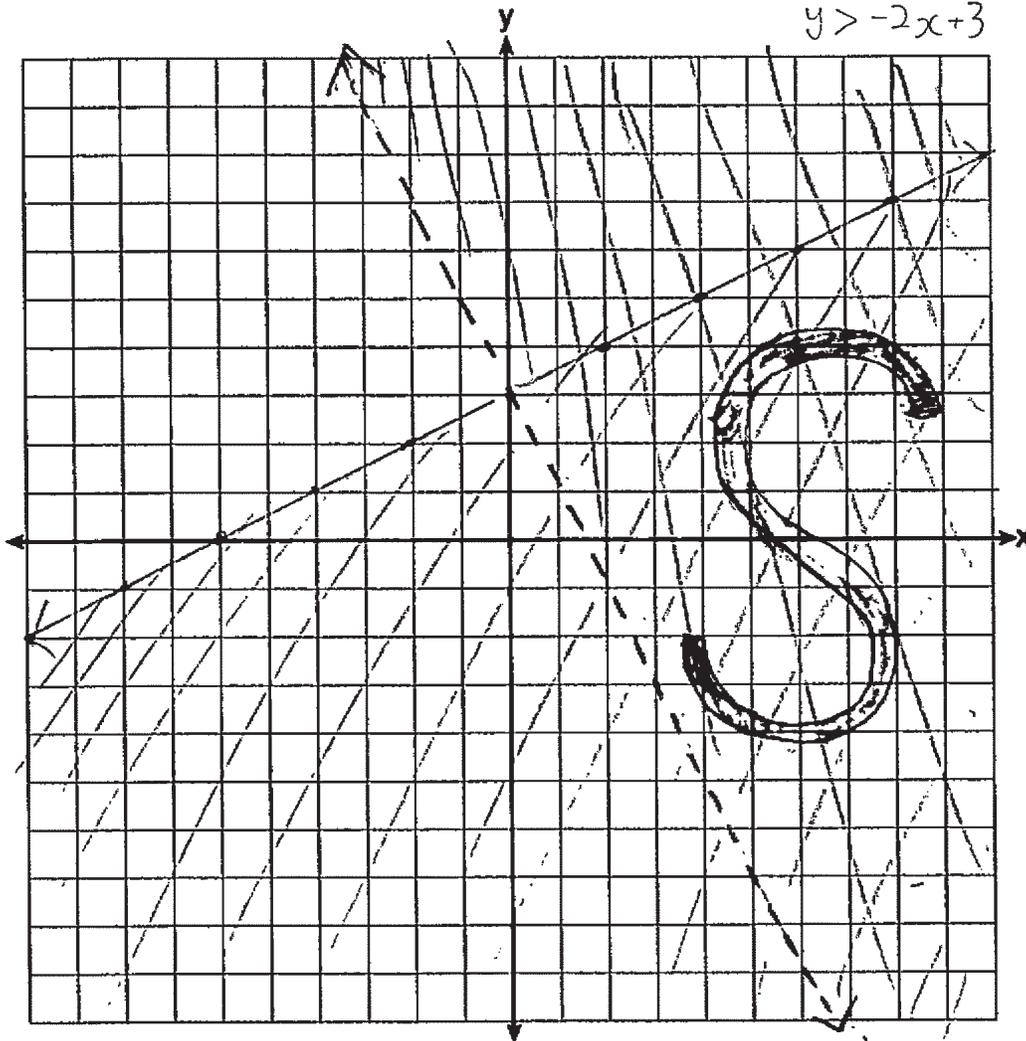**Score 3:** The student wrote an incomplete explanation.

Question 34

34 Solve the following system of inequalities graphically.

Label the solution set S.

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

Handwritten work:
$$2 < 3$$
$$-2 \quad -2$$
$$0 < 1 \qquad -7 > -3$$
$$1 < 1.5$$
$$y \leq \frac{1}{2}x + 3$$
$$y > 3 - 2x$$
$$y > -2x + 3$$

Is the point (0, 3) in the solution set? Explain your answer. No, because it is in the one of the system's solution but it is not in the both of the system solution. The second system does not include (0,3).

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

34 Solve the following system of inequalities graphically.

Label the solution set *S*.

$$\frac{2y}{3} \leq \frac{x}{2} + 6 \qquad y < \frac{1}{2}x + 3$$

$$-2x + y \geq 3$$

$$y \geq -2x + 3$$
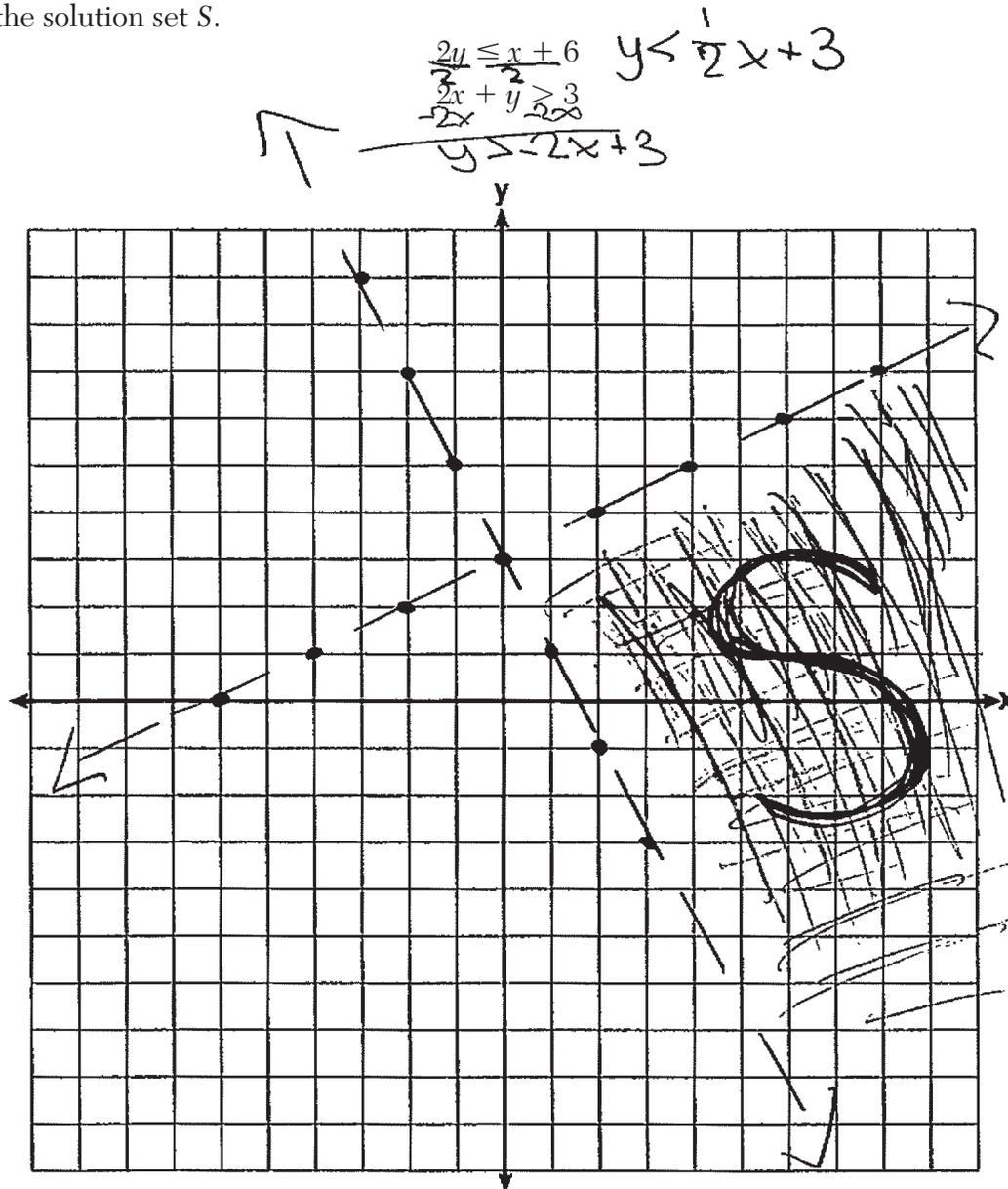
Is the point (0, 3) in the solution set? Explain your answer.

no b/c both of lines are dashed

Score 2: The student made a transcription error and did not label either inequality.

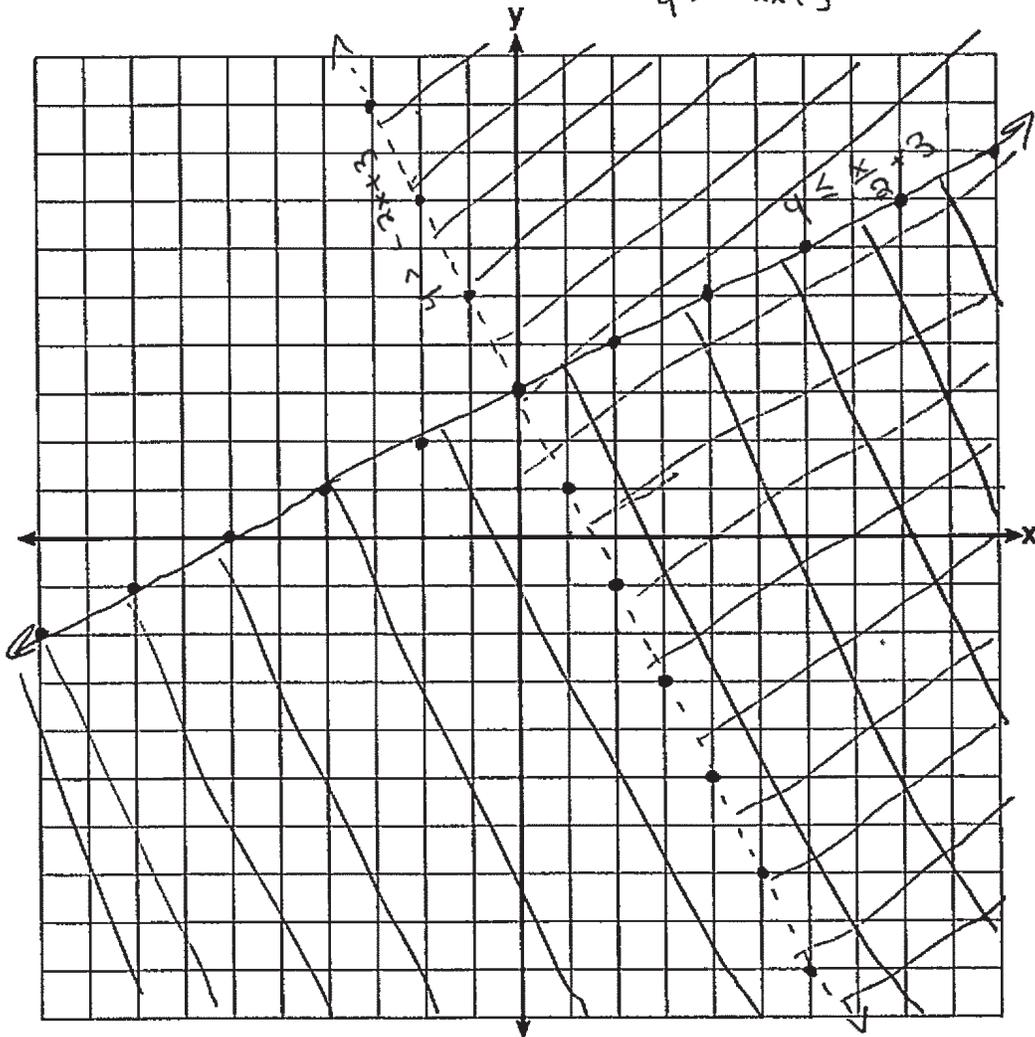**34** Solve the following system of inequalities graphically.

Label the solution set *S*.

$$2y \leq x + 6 \qquad y \leq \frac{x}{2} + 3$$
$$2x + y > 3 \qquad y > -2x + 3$$

Is the point $(0, 3)$ in the solution set? Explain your answer.

Yes, because it's included and it's a point on the line.

Score 2: The student did not label *S* and wrote an incorrect explanation.

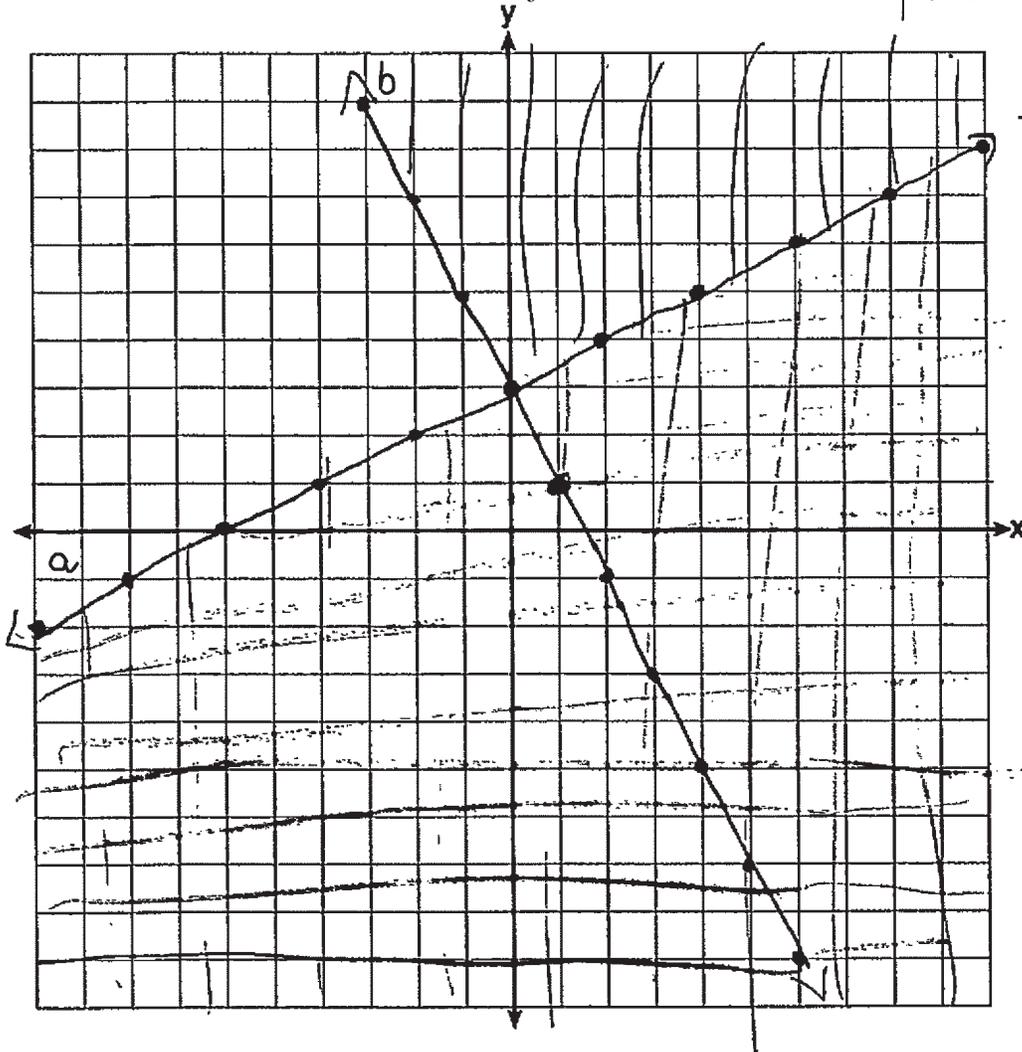**34** Solve the following system of inequalities graphically.

Label the solution set *S*.

a $2y \leq x + 6$
b $2x + y > 3$

$$\frac{2y \leq x + 6}{2}$$

$$y \leq \tfrac{1}{2}x + 3$$

$$\frac{2x + y > 3}{-2 \quad -1}$$

$$y > -2x + 3$$

Is the point (0, 3) in the solution set? Explain your answer.

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

34 Solve the following system of inequalities graphically.

Label the solution set *S*.

$$2y \leq x + 6 \qquad y \leq \tfrac{1}{2}x + 3$$
$$2x + y > 3 \qquad y > -2x + 3$$
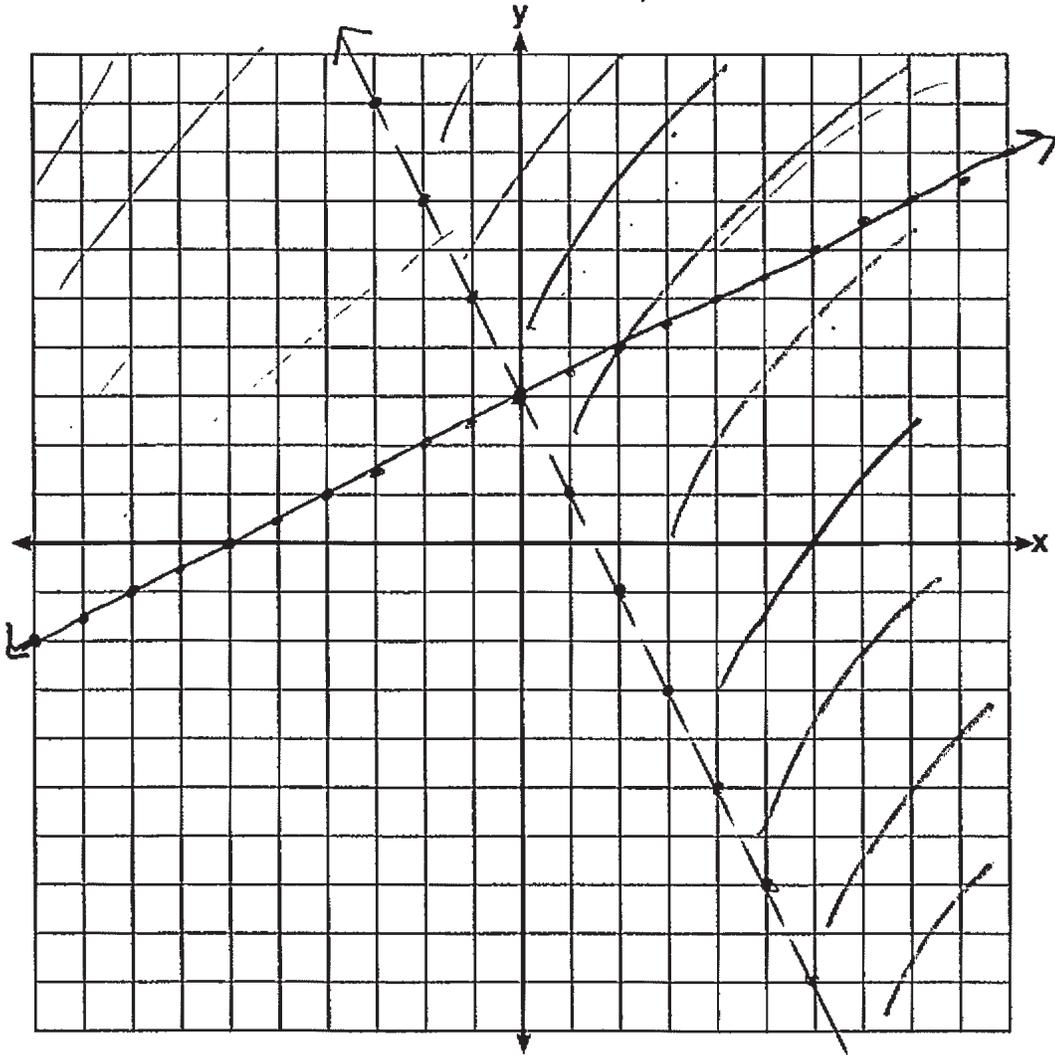
Is the point (0, 3) in the solution set? Explain your answer.

Yes, (0,3) is the vertex, which means it is part of the solution sol

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

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If x represents the cost of one pair of running shoes and y represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

$$\begin{cases} 30x + 10y = 3700 \\ 15x + 20y = 3575 \end{cases}$$

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.

No, because the cost of Shoes for March is not equal to 3575.

$30(80) + 10(130) = 3700$
$2400 + 1300 = 3700$ $3700 = 3700$ ✓
$15(80) + 20(130) = 3575$
$1200 + 2600 = 3800$ $3800 \neq 3575$

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

Question 35 continued

Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.

$30(85) + 10(115) = 3700$

$2550 + 1150 = 3700$

$3700 = 3700$

$x = 85$
$y = 115$

$30x + 10y = 3700$

$15x + 20y = 3575$

$30x + 10(115) = 3700$

$30x + 1150 = 3700$

$ -1150 \quad -1150$

$\overline{ 30x = 2550}$

$\dfrac{30x}{30} = \dfrac{2550}{30}$

$30x + 10y = 3700$

$30x + 40y = 7150$

$\overline{ -30y = -3450}$

$\dfrac{-30y}{-30} = \dfrac{-3450}{-30}$

$y = 115$

$x = 85 \qquad 3575 = 3575$

$15(85) + 20(115) = 3575$

$1275 + 2300 = 3575$

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If x represents the cost of one pair of running shoes and y represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

$x =$ running shoes
$y =$ basketball shoes

$$30x + 10y = 3700$$
$$15x + 20y = 3575$$

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.

$$30x + 10y = 3700$$
$$15x + 20y = 3575$$

$$15x + 5y = 1850$$
$$-(15x + 20y = 3575)$$
$$-15y = -1725$$
$$\frac{-15y}{-15} = \frac{-1725}{-15}$$
$$y = 115$$

$$30x + 1150 = 3700$$
$$\underline{-1150 \quad -1150}$$
$$\frac{30x}{30} = \frac{2550}{30}$$
$$x = 85$$

He is incorrect because the running shoes cost $85 and the basketball shoes cost $115.

Question 35 is continued on the next page.

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

Question 35 continued

Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.

$$30x + 10y = 3200$$
$$\frac{}{2}$$

$$15x + 5y = 1850$$
$$-(15x + 20y = 3575)$$
$$\overline{-15y = -1725}$$
$$\frac{}{-15} \quad \frac{}{-15}$$
$$\boxed{y = 115}$$

$$15x + 20y = 3575$$
$$15x + 2300 = 3575$$
$$\underline{-2300 \quad -2300}$$
$$\frac{15x}{15} = \frac{1275}{15}$$
$$\boxed{x = 85}$$

The cost of one pair of running shoes costs $85 and the cost of one pair of basketball shoes costs $115.

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If x represents the cost of one pair of running shoes and y represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

$$30r + 10b = 3700$$
$$15r + 20b = 3525$$

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.

$$30(80) + 10(130) = 3700 \checkmark$$
$$(15(80) + 20(130)) = 3800 \times$$

NO because it only works with one equation.

Score 5: The student did not define their variables.

Question 35 continued

Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.

$$15(85) + 20b = 3525$$
$$1275 + 20b = 3525$$
$$-1275 \qquad -1275$$
$$\frac{20b}{20} = \frac{2300}{20}$$
$$b = 115$$

$$30(85) + 10(115) = 3200 \checkmark$$
$$15(85) + 20(115) = 3525 \checkmark$$
$$r = 85$$
$$b = 115 \qquad \text{Check}$$

$$-2(30r + 10b = 3700)$$
$$15r + 20b = 3525$$

$$-45r = -3825$$
$$r = 85$$

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If x represents the cost of one pair of running shoes and y represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

$$\begin{cases} 30x + 10y = 3700 \\ 15x + 20y = 3575 \end{cases}$$

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.

Jacob is correct.

$$30(80) + 10(130) = 3700$$
$$2400 + 1300 = 3700$$
$$3700 = 3700$$

Score 5: The student did not justify the second equation to indicate a negative response.

Question 35 continued

Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.

$$30x + 10y = 3700$$
$$-2 \cdot (15x + 20y = 3575)$$

$$30x + 10(115) = 3700$$
$$30x + 1150 = 3700$$
$$\underline{-1150 \quad -1150}$$

$$30x + 10y = 3700$$
$$-30x - 40y = -7150$$

$$\frac{30x}{30} = \frac{2550}{30}$$

$$x = 85$$

$$\frac{-30y}{-30} = \frac{-3450}{-30}$$
$$y = 115$$

Runing Shoes : $85
basketball Shoes $115

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If x represents the cost of one pair of running shoes and y represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

$$30x + 10y = 3700$$
$$15x + 20y = 3575$$

$$x = 80 \qquad y = 130$$

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.

$$30(80) + 10(130) = 3700 \qquad 3700 = 3700$$

$$15(80) + 20(130) \neq 3575 \qquad 3575 \neq 3800$$

Score 4: The student did not indicate a negative response and did not find the cost of one pair of running shoes.

Question 35 continued

Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.

$$30x + 10y = 3700$$

$$-2(15x + 20y = 3575)$$

Basketball = $115

Running =

$$30x + 10y = 3700$$

$$-30x - 40y = -7150$$

$$\overline{}$$

$$\frac{-30y}{-30} = \frac{-3450}{-30}$$

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If x represents the cost of one pair of running shoes and y represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

$$-2(30x + 10y = 3700)$$
$$15x + 20y = 3575$$

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.

$$30(80) + 10(130) = 3700$$
$$\checkmark$$

$$\boxed{yes}$$

Question 35 is continued on the next page.

Score 3: The student only justified the first equation, made an error multiplying $(-2)(3700)$, and changed -995 to 995.

Question 35 continued

Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.

$$-60x-20_y = -74000$$

$$15x + 20_y = 3575$$

$$\frac{-45x = -70425}{-45} \quad \frac{}{-45}$$

$$x = 1565$$

$$15(1565)+20_y=3575$$

$$23475+20y=3575$$

$$-23475 \qquad -23475$$

$$\frac{20y}{20} = \frac{-19900}{20}$$

$$x = -995$$

running shoes
= $1565
basketball shoes
= $995

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If x represents the cost of one pair of running shoes and y represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

$$x = \$ \text{ of one pair of running shoes}$$
$$y = \$ \text{ of one pair of basketball shoes}$$
$$30X + 10Y = 3700$$
$$15X + 20Y = 3575$$

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.

Yes, Jacob is correct because when you multiply 30 and 80 the product is 2400. On question #1 it saids the store bought 30 pairs of running shoes. Jacob saids a pair of running shoes costs $80 each. A pair of basketball shoes costs $130 each and the store bought 10 pairs of basketball shoes which is $1300 in total, then 30 pairs of running shoes and 10 pairs of basketball shoes comes to a total of $3,700.

$$\begin{array}{r} 30 \\ \times 80 \\ \hline 2400 \end{array} \qquad \begin{array}{r} 130 \\ \times 10 \\ \hline 1300 \end{array} \qquad \begin{array}{r} 2400 \\ +1300 \\ \hline 3700 \end{array}$$

Score 3: The student wrote a correct system of equations and justified only one equation.

Question 35 continued

Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.

$$30x + 10y = 3700$$
$$-1.30(15x + 20y) = 3575$$
$$-30x = 15x - 20y = -3575$$

$$-45y - 20y = -3575$$
$$+20y \quad +20y$$
$$-25y = -3575$$
$$\overline{\quad -25 \quad}$$
$$\boxed{y = 143}$$

$$30x + 10y = 3700$$
$$-10x - 10y$$
$$\overline{20x = 3700}$$
$$\overline{20}$$
$$\boxed{x = 185}$$

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If x represents the cost of one pair of running shoes and y represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

$$30x + 10y = \$3700$$

$$15x + 20y = 3575$$

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.

$$\$80 \cdot 30 = 2400$$

$$\$10 \cdot 130 = 1300$$

He is incorrect because of the equations shown above

Question 35 is continued on the next page.

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

Question 35 continued

Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.

$$30X + 10y = 3700$$
$$-10 \quad -10$$

$$\frac{30x}{30} = \frac{690}{30}$$

$$\boxed{X = 23\$}$$

$$15X + 20y = 3575$$
$$\quad -20 \quad -20$$

$$\frac{15X}{15} = \frac{3555}{15}$$

$$\boxed{X = 237}$$

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If x represents the cost of one pair of running shoes and y represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

$$X+y=3575$$
$$15+20=35$$

$$x+y=3700$$
$$30+10=40$$

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.

$$15 \times 80$$
$$20 \times 130 \quad + \quad = 3575$$

$$1200 + 2600 = 3800 \neq 3575$$

he is wrong because it doesn't equal
3575 it equals 3,800

Question 35 is continued on the next page.

Score 2: The student wrote a correct justification.

Question 35 continued

Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.

$$15 + y = 83575$$

$$\frac{3560}{35} = 101.7 \text{ for running shoes}$$

$$101.66 \text{ for Basketball shoes}$$

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If x represents the cost of one pair of running shoes and y represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

$$30R + 10B = \$3700$$

$$20B + 15R = \$3575$$

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.

NO because Dinding the costs by the numbers. They both do not make sense

Score 1: The student wrote a correct system of equations, but did not define their variables.

Question 35 continued

Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.

Running Shoes cost 85

basket ball shoes cost 125

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If x represents the cost of one pair of running shoes and y represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

Jan: 30 ε 10 = 3700

March: 15 ε 20 = 3575

$y = 2400$ } Jan
$x = 1300$

$y = 1200$ } March
$x = 2600$

running shoes $80 each

bball $130 each

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.

He is correct because
80·30 is 2400   and 130·10
is 1300 and if you add that
together you get 3700.

Question 35 is continued on the next page.

Score 1:   The student only justified in the first equation.

Question 35 continued

Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If *x* represents the cost of one pair of running shoes and *y* represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

January
30 Running shoes
10 Basketball shoes $\Big\}$ $3,700

March
15 Running Shoes
20 Basketball shoes $\Big\}$ $3,575

$$X + Y = \$3700$$
$$x + y = \$3575$$

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.

Pair of Running Shoes : $80
Pair of Basketball Shoes : $130

Yes he is correct because if you combine the totals then you get the same answer

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

Question 35 continued

Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.

$130

$ 80

$130 - 80 = 50

35 Acme Athletics purchases shoes from a supply company. In January the store bought 30 pairs of running shoes and 10 pairs of basketball shoes for $3700. In March they bought 15 pairs of running shoes and 20 pairs of basketball shoes for $3575. The supply company kept their prices constant.

If x represents the cost of one pair of running shoes and y represents the cost of one pair of basketball shoes, write a system of equations that models this situation.

$$Y = ax + b$$

Jacob says that a pair of running shoes costs the store $80 each, and a pair of basketball shoes costs the store $130 each. Is he correct? Justify your answer.

NO $3700 / .10 = 370$

$3700 / 30 = 123\overline{3}$

Question 35 is continued on the next page.

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

Question 35 continued

Solve your system of equations algebraically to find the exact cost, in dollars, of one pair of running shoes and the exact cost, in dollars, of one pair of basketball shoes.

A singular pair of basketball shoes is 370 and a singular pair of running shoes is 123.3 = 124

Regents Examination in Algebra I – JANUARY 2026

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

(Use for the January 2026 exam only.)

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