ALGEBRA

I

ALGEBRA I

Wednesday, January 23, 2019 — 1:15 to 4:15 p.m., only

Student Name _____

School Name _____

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

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

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

This examination has four parts, with a total of 37 questions. You must answer all questions in this examination. Record your answers to the Part I multiple-choice questions on the separate answer sheet. Write your answers to the questions in **Parts II**, **III**, and **IV** directly in this booklet. All work should be written in pen, except for graphs and drawings, which should be done in pencil. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale.

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

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

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

Notice …

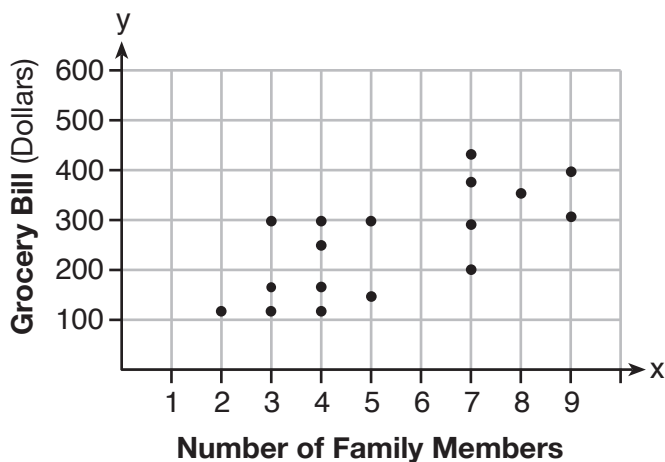**A graphing calculator and a straightedge (ruler) must be available for you to use while taking this examination.**

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

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

Use this space for computations.

1 The scatter plot below shows the relationship between the number of members in a family and the amount of the family's weekly grocery bill.

The most appropriate prediction of the grocery bill for a family that consists of six members is

(1) $100

(2) $300

(3) $400

(4) $500

2 The function $g(x)$ is defined as $g(x) = -2x^2 + 3x$. The value of $g(-3)$ is

(1) -27

(2) -9

(3) 27

(4) 45

3 Which expression results in a rational number?

(1) $\sqrt{121} - \sqrt{21}$

(2) $\sqrt{25} \cdot \sqrt{50}$

(3) $\sqrt{36} \div \sqrt{225}$

(4) $3\sqrt{5} + 2\sqrt{5}$

4 The math department needs to buy new textbooks and laptops for the computer science classroom. The textbooks cost \$116.00 each, and the laptops cost \$439.00 each. If the math department has \$6500 to spend and purchases 30 textbooks, how many laptops can they buy?

(1) 6   (3) 11

(2) 7   (4) 12

5 What is the solution to the equation $\frac{3}{5}\left(x + \frac{4}{3}\right) = 1.04$?

(1) $3.0\overline{6}$ (3) $-0.4\overline{8}$

(2) 0.4 (4) $-0.709\overline{3}$

6 The area of a rectangle is represented by $3x^2 - 10x - 8$. Which expression can also be used to represent the area of the same rectangle?

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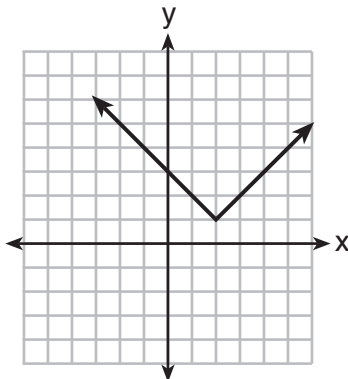
(2) $(3x + 2)(x + 4)$ (4) $(3x - 4)(x + 2)$

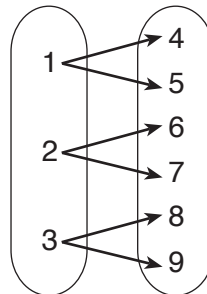7 Which relation does *not* represent a function?

x	1	2	3	4	5	6
y	3.2	4	5.1	6	7.4	8.8

$y = 3\sqrt{x+1} - 2$

(1)   (3)

(2)   (4)

8 Britney is solving a quadratic equation. Her first step is shown below.

Problem: $3x^2 - 8 - 10x = 3(2x + 3)$
Step 1: $3x^2 - 10x - 8 = 6x + 9$

Which two properties did Britney use to get to step 1?

  I.   addition property of equality
  II. commutative property of addition
  III. multiplication property of equality
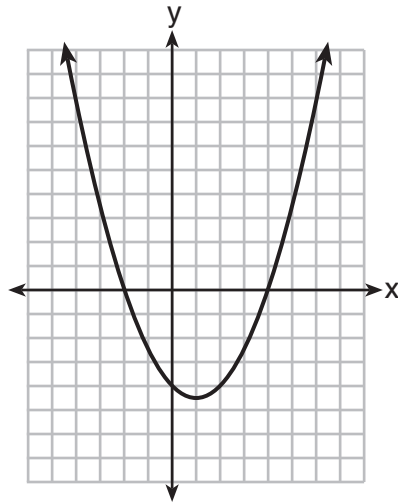 IV. distributive property of multiplication over addition

(1) I and III

(2) I and IV

(3) II and III

(4) II and IV

9 The graph of $y = \frac{1}{2}x^2 - x - 4$ is shown below. The points $A(-2,0)$, $B(0,-4)$, and $C(4,0)$ lie on this graph.

Which of these points can determine the zeros of the equation $y = \frac{1}{2}x^2 - x - 4$?

(1) A, only

(2) B, only

(3) A and C, only

(4) A, B, and C

10 Given the parent function $f(x) = x^3$, the function $g(x) = (x - 1)^3 - 2$ is the result of a shift of $f(x)$

(1) 1 unit left and 2 units down

(2) 1 unit left and 2 units up

(3) 1 unit right and 2 units down

(4) 1 unit right and 2 units up

11 If $C = 2a^2 - 5$ and $D = 3 - a$, then $C - 2D$ equals

(1) $2a^2 + a - 8$ (3) $2a^2 + 2a - 11$

(2) $2a^2 - a - 8$ (4) $2a^2 - a - 11$

12 Marc bought a new laptop for $1250. He kept track of the value of the laptop over the next three years, as shown in the table below.

Years After Purchase	Value in Dollars
1	1000
2	800
3	640

Which function can be used to determine the value of the laptop for x years after the purchase?

(1) $f(x) = 1000(1.2)^x$ (3) $f(x) = 1250(1.2)^x$

(2) $f(x) = 1000(0.8)^x$ (4) $f(x) = 1250(0.8)^x$

13 The height of a ball Doreen tossed into the air can be modeled by the function $h(x) = -4.9x^2 + 6x + 5$, where x is the time elapsed in seconds, and $h(x)$ is the height in meters. The number 5 in the function represents

(1) the initial height of the ball

(2) the time at which the ball reaches the ground

(3) the time at which the ball was at its highest point

(4) the maximum height the ball attained when thrown in the air

14 The function $f(x) = 2x^2 + 6x - 12$ has a domain consisting of the integers from -2 to 1, inclusive. Which set represents the corresponding range values for $f(x)$?

(1) $\{-32, -20, -12, -4\}$ (3) $\{-32, -4\}$

(2) $\{-16, -12, -4\}$ (4) $\{-16, -4\}$

15 Which equation has the same solution as $x^2 + 8x - 33 = 0$?

(1) $(x + 4)^2 = 49$ (3) $(x + 4)^2 = 17$

(2) $(x - 4)^2 = 49$ (4) $(x - 4)^2 = 17$

16 The table below shows the weights of Liam's pumpkin, $l(w)$, and Patricia's pumpkin, $p(w)$, over a four-week period where w represents the number of weeks. Liam's pumpkin grows at a constant rate. Patricia's pumpkin grows at a weekly rate of approximately 52%.

Weeks w	Weight in Pounds l(w)	Weight in Pounds p(w)
6	2.4	2.5
7	5.5	3.8
8	8.6	5.8
9	11.7	8.8

Assume the pumpkins continue to grow at these rates through week 13. When comparing the weights of both Liam's and Patricia's pumpkins in week 10 and week 13, which statement is true?

(1) Liam's pumpkin will weigh more in week 10 and week 13.

(2) Patricia's pumpkin will weigh more in week 10 and week 13.

(3) Liam's pumpkin will weigh more in week 10, and Patricia's pumpkin will weigh more in week 13.

(4) Patricia's pumpkin will weigh more in week 10, and Liam's pumpkin will weigh more in week 13.

17 The function $f(x)$ is graphed below.

f(x)
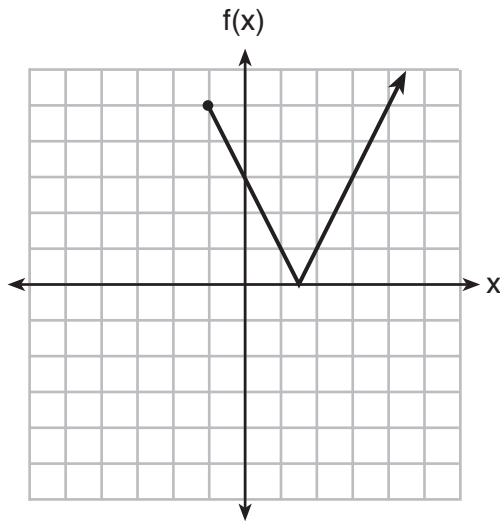
The domain of this function is

(1) all positive real numbers   (3) $x \geq 0$

(2) all positive integers   (4) $x \geq -1$

18 Which pair of equations would have $(-1,2)$ as a solution?

(1) $y = x + 3$ and $y = 2^x$

(2) $y = x - 1$ and $y = 2x$

(3) $y = x^2 - 3x - 2$ and $y = 4x + 6$

(4) $2x + 3y = -4$ and $y = -\dfrac{1}{2}x - \dfrac{3}{2}$

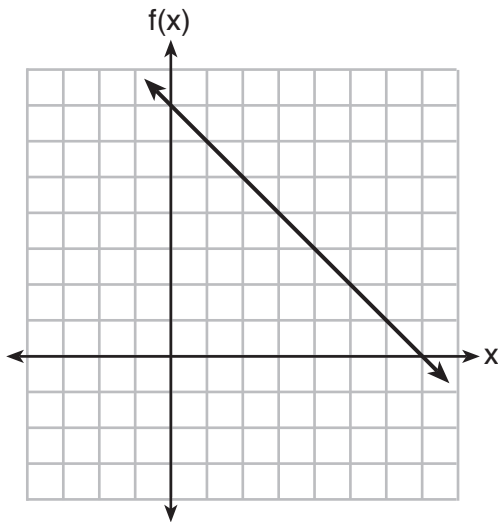**19** Which function could be used to represent the sequence 8, 20, 50, 125, 312.5,..., given that $a_1 = 8$?

(1) $a_n = a_{n-1} + a_1$ (3) $a_n = a_1 + 1.5(a_{n-1})$

(2) $a_n = 2.5(a_{n-1})$ (4) $a_n = (a_1)(a_{n-1})$

20 The formula for electrical power, P, is $P = I^2R$, where I is current and R is resistance. The formula for I in terms of P and R is

(1) $I = \left(\dfrac{P}{R}\right)^2$

(3) $I = (P - R)^2$

(2) $I = \sqrt{\dfrac{P}{R}}$

(4) $I = \sqrt{P - R}$

21 The functions $f(x)$, $q(x)$, and $p(x)$ are shown below.

f(x)

$q(x) = (x - 1)^2 - 6$

x	p(x)
2	5
3	4
4	3
5	4
6	5

When the input is 4, which functions have the same output value?

(1) $f(x)$ and $q(x)$, only

(3) $q(x)$ and $p(x)$, only

(2) $f(x)$ and $p(x)$, only

(4) $f(x)$, $q(x)$, and $p(x)$

22 Using the substitution method, Vito is solving the following system of equations algebraically:

$$y + 3x = -4$$
$$2x - 3y = -21$$

Which equivalent equation could Vito use?

(1) $2(-3x - 4) + 3x = -21$

(3) $2x - 3(-3x - 4) = -21$

(2) $2(3x - 4) + 3x = -21$

(4) $2x - 3(3x - 4) = -21$

23 Materials *A* and *B* decay over time. The function for the amount of material *A* is $A(t) = 1000(0.5)^{2t}$ and for the amount of material *B* is $B(t) = 1000(0.25)^t$, where *t* represents time in days. On which day will the amounts of material be equal?

(1) initial day, only   (3) day 5, only

(2) day 2, only   (4) every day

24 The following conversion was done correctly:

$$\frac{3 \text{ miles}}{1 \text{ hour}} \cdot \frac{1 \text{ hour}}{60 \text{ minutes}} \cdot \frac{5280 \text{ feet}}{1 \text{ mile}} \cdot \frac{12 \text{ inches}}{1 \text{ foot}}$$

What were the final units for this conversion?

(1) minutes per foot

(2) minutes per inch

(3) feet per minute

(4) inches per minute

Part II

Answer all 8 questions in this part. Each correct answer will receive 2 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [16]

25 Solve algebraically for x: $3600 + 1.02x < 2000 + 1.04x$

26 The number of people who attended a school's last six basketball games increased as the team neared the state sectional games. The table below shows the data.

Game	13	14	15	16	17	18
Attendance	348	435	522	609	696	783

State the type of function that best fits the given data. Justify your choice of a function type.

27 Solve $x^2 - 8x - 9 = 0$ algebraically.

Explain the first step you used to solve the given equation.

28 The graph of $f(t)$ models the height, in feet, that a bee is flying above the ground with respect to the time it traveled in t seconds.
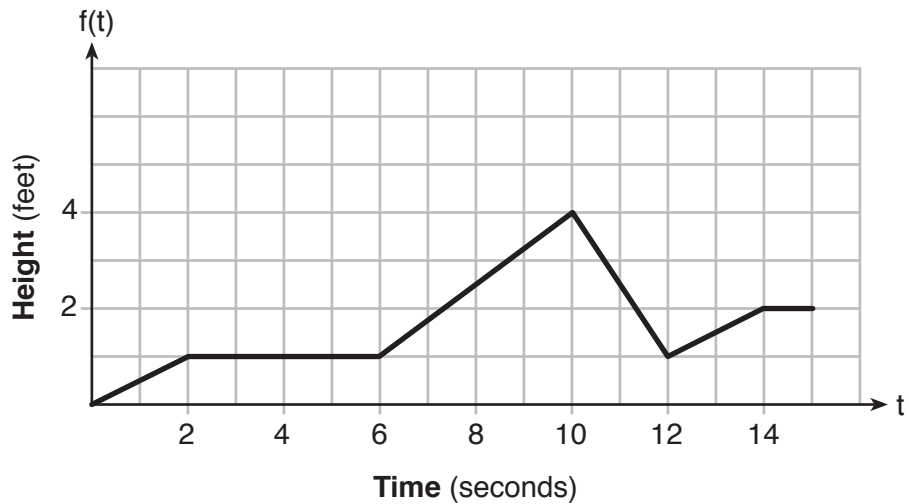
State all time intervals when the bee's rate of change is zero feet per second. Explain your reasoning.

29 Graph the function $f(x) = 2^x - 7$ on the set of axes below.
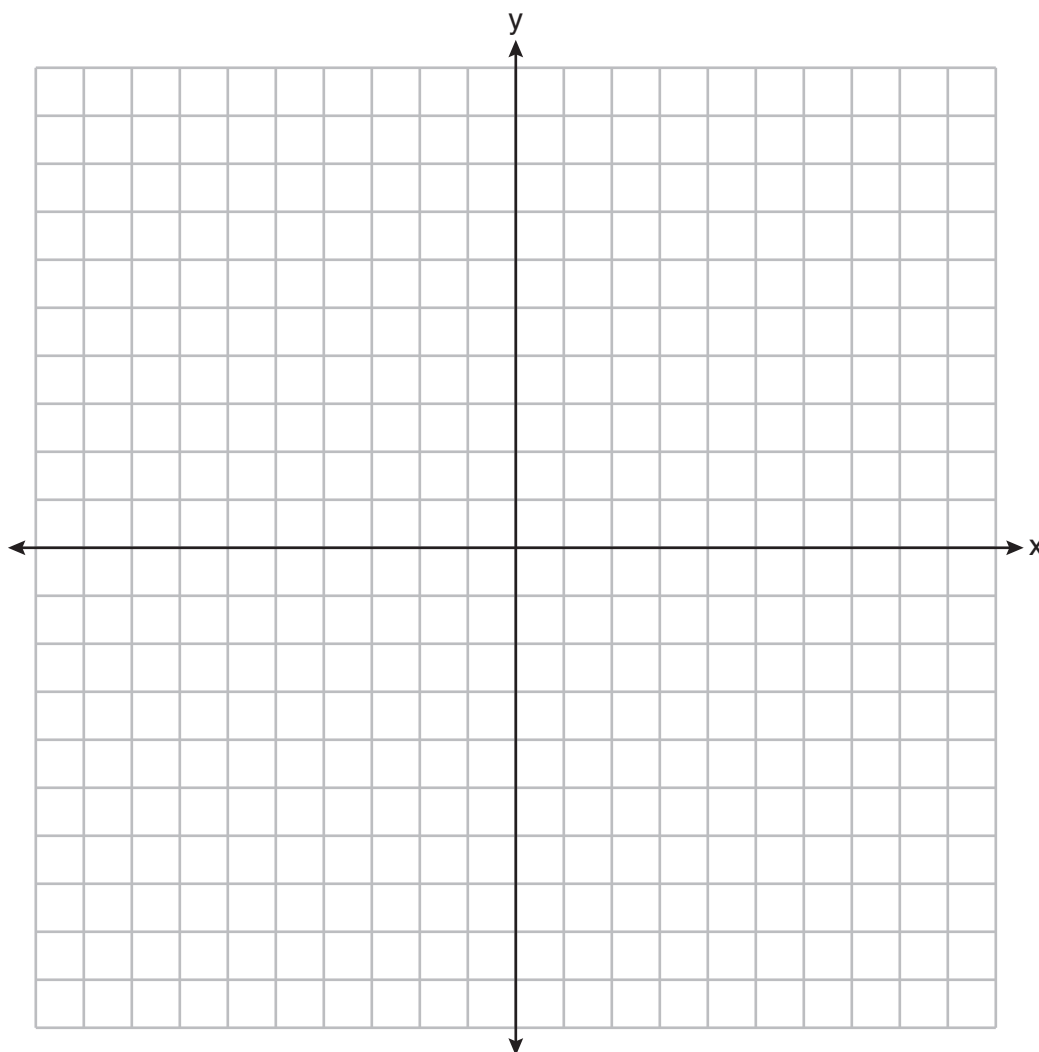
If $g(x) = 1.5x - 3$, determine if $f(x) > g(x)$ when $x = 4$. Justify your answer.

30 Determine algebraically the zeros of $f(x) = 3x^3 + 21x^2 + 36x$.

31 Santina is considering a vacation and has obtained high-temperature data from the last two weeks for Miami and Los Angeles.

Miami	76	75	83	73	60	66	76
	81	83	85	83	87	80	80

Los Angeles	74	63	65	67	65	65	65
	62	62	72	69	64	64	61

Which location has the least variability in temperatures? Explain how you arrived at your answer.

32 Solve the quadratic equation below for the exact values of x.

$$4x^2 - 5 = 75$$

Answer all 4 questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [16]

33 Marilyn collects old dolls. She purchases a doll for $450. Research shows this doll's value will increase by 2.5% each year.

Write an equation that determines the value, V, of the doll t years after purchase.

Assuming the doll's rate of appreciation remains the same, will the doll's value be doubled in 20 years? Justify your reasoning.

34 The data given in the table below show some of the results of a study comparing the height of a certain breed of dog, based upon its mass.

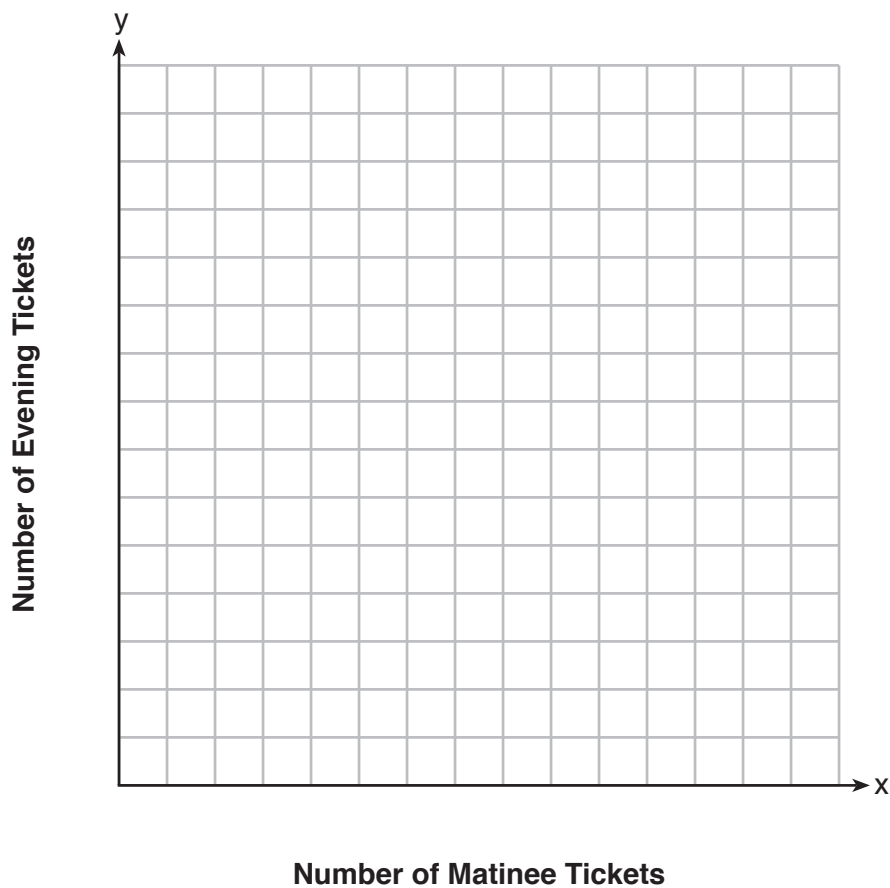| Mass (kg)	4.5	5	4	3.5	5.5	5	5	4	4	6	3.5	5.5
Height (cm)	41	40	35	38	43	44	37	39	42	44	31	30

Write the linear regression equation for these data, where x is the mass and y is the height. Round all values to the *nearest tenth*.

State the value of the correlation coefficient to the *nearest tenth,* and explain what it indicates.

35 Myranda received a movie gift card for $100 to her local theater. Matinee tickets cost $7.50 each and evening tickets cost $12.50 each.

If x represents the number of matinee tickets she could purchase, and y represents the number of evening tickets she could purchase, write an inequality that represents all the possible ways Myranda could spend her gift card on movies at the theater.

On the set of axes below, graph this inequality.

Number of Evening Tickets

y

x

Number of Matinee Tickets

What is the maximum number of matinee tickets Myranda could purchase with her gift card? Explain your answer.

36 One spring day, Elroy noted the time of day and the temperature, in degrees Fahrenheit. His findings are stated below.

At 6 a.m., the temperature was 50°F. For the next 4 hours, the temperature rose 3° per hour.
The next 6 hours, it rose 2° per hour.
The temperature then stayed steady until 6 p.m.
For the next 2 hours, the temperature dropped 1° per hour.
The temperature then dropped steadily until the temperature was 56°F at midnight.

On the set of axes below, graph Elroy's data.

State the entire time interval for which the temperature was increasing.

Determine the average rate of change, in degrees per hour, from 6:00 p.m. to midnight.

Part IV

Answer the question in this part. A correct answer will receive 6 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided to determine your answer. Note that diagrams are not necessarily drawn to scale. A correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [6]

37 A recreation center ordered a total of 15 tricycles and bicycles from a sporting goods store. The number of wheels for all the tricycles and bicycles totaled 38.

Write a linear system of equations that models this scenario, where t represents the number of tricycles and b represents the number of bicycles ordered.

On the set of axes below, graph this system of equations.
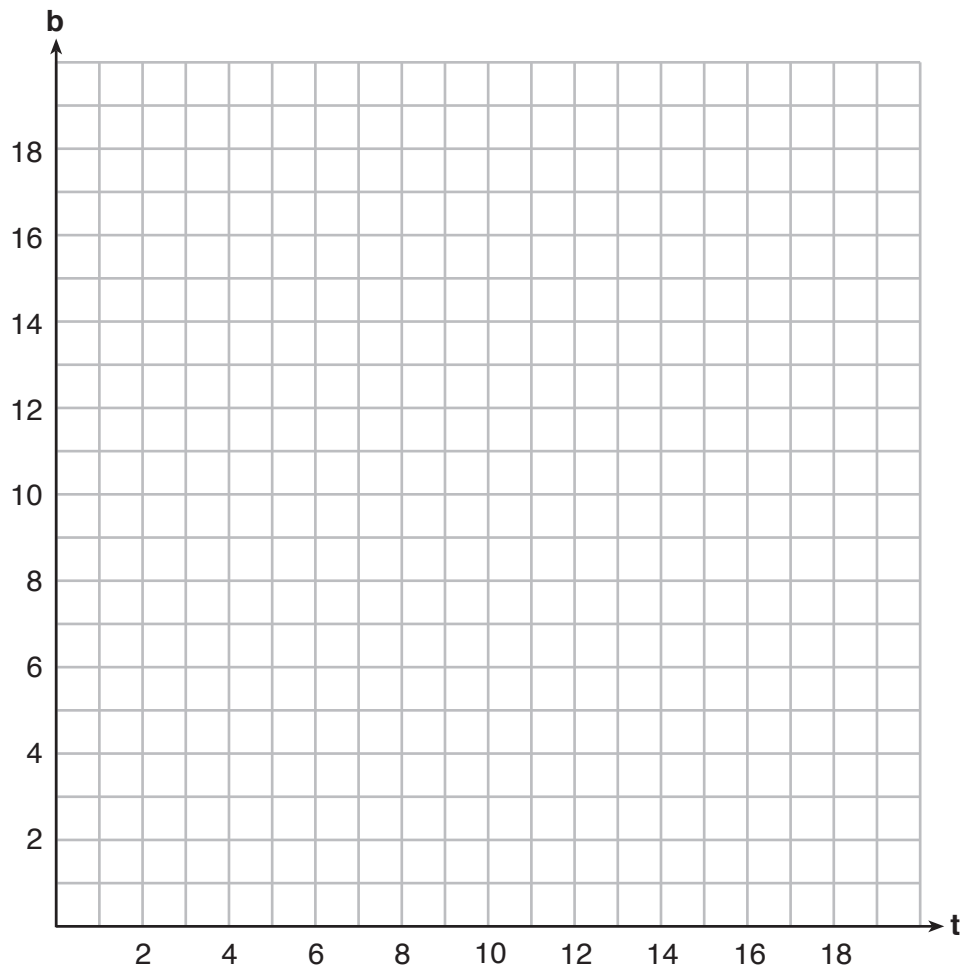
Question 37 is continued on the next page.

Based on your graph of this scenario, could the recreation center have ordered 10 tricycles? Explain your reasoning.

Scrap Graph Paper — this sheet will *not* be scored.
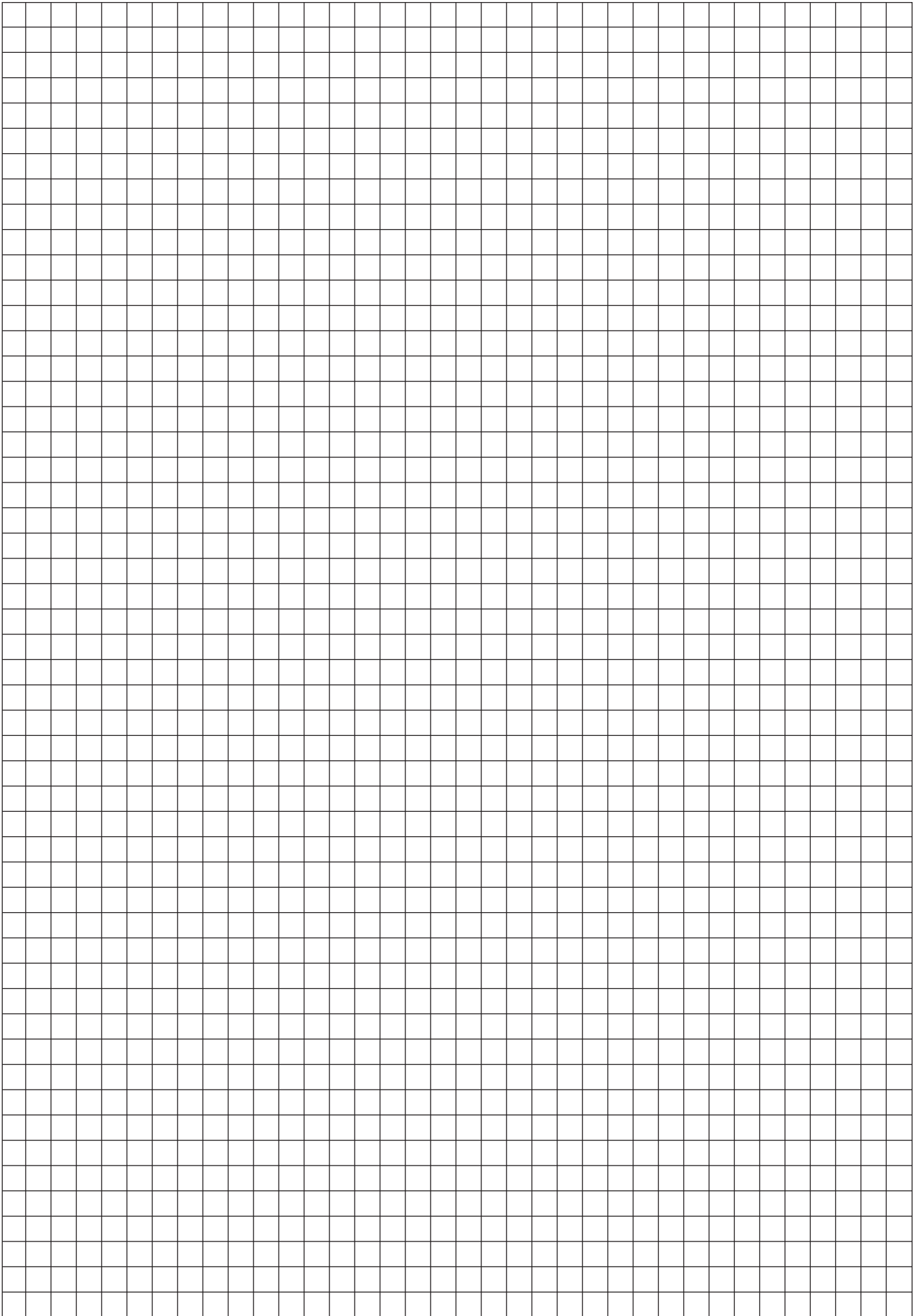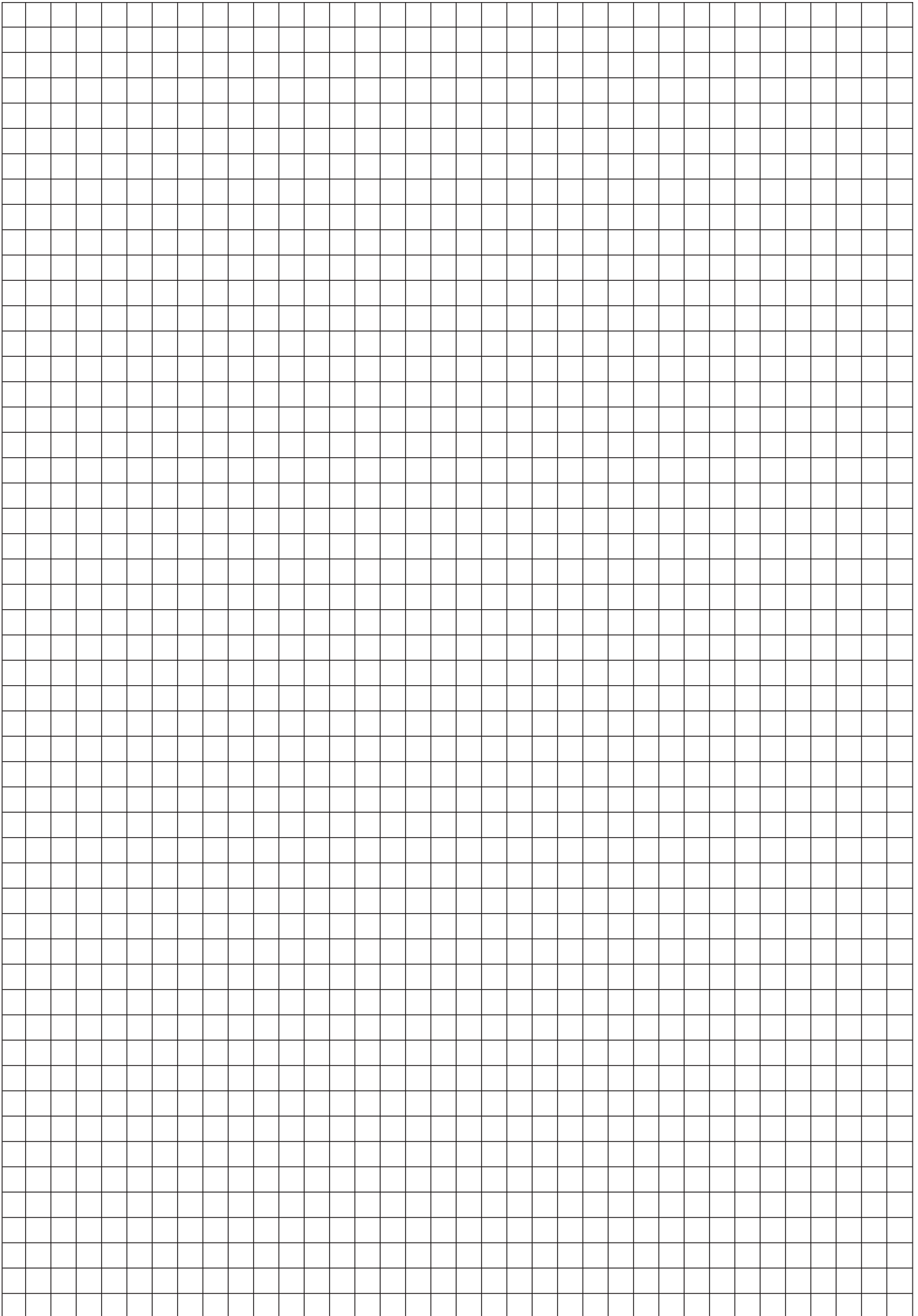
High School Math Reference Sheet

1 inch = 2.54 centimeters   1 kilometer = 0.62 mile   1 cup = 8 fluid ounces
1 meter = 39.37 inches   1 pound = 16 ounces   1 pint = 2 cups
1 mile = 5280 feet   1 pound = 0.454 kilogram   1 quart = 2 pints
1 mile = 1760 yards   1 kilogram = 2.2 pounds   1 gallon = 4 quarts
1 mile = 1.609 kilometers   1 ton = 2000 pounds   1 gallon = 3.785 liters
   1 liter = 0.264 gallon
   1 liter = 1000 cubic centimeters

Triangle	$A = \frac{1}{2}bh$	Pythagorean Theorem	$a^2 + b^2 = c^2$
Parallelogram	$A = bh$	Quadratic Formula	$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Circle	$A = \pi r^2$	Arithmetic Sequence	$a_n = a_1 + (n - 1)d$
Circle	$C = \pi d$ or $C = 2\pi r$	Geometric Sequence	$a_n = a_1 r^{n-1}$
General Prisms	$V = Bh$	Geometric Series	$S_n = \dfrac{a_1 - a_1 r^n}{1 - r}$ where $r \neq 1$
Cylinder	$V = \pi r^2 h$	Radians	$1 \text{ radian} = \dfrac{180}{\pi}$ degrees
Sphere	$V = \frac{4}{3}\pi r^3$	Degrees	$1 \text{ degree} = \dfrac{\pi}{180}$ radians
Cone	$V = \frac{1}{3}\pi r^2 h$	Exponential Growth/Decay	$A = A_0 e^{k(t - t_0)} + B_0$
Pyramid	$V = \frac{1}{3}Bh$		

Tear Here

ALGEBRA I

Printed on Recycled Paper

ALGEBRA I

FOR TEACHERS ONLY

ALGEBRA I

Wednesday, January 23, 2019 — 1:15 to 4:15 p.m., only

SCORING KEY AND RATING GUIDE

Mechanics of Rating

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

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

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

Schools are not permitted to rescore any of the 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.

Raters should record the student's scores for all questions and the total raw score on the student's separate answer sheet. Then the student's total raw score should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: http://www.p12.nysed.gov/assessment/ by Wednesday, January 23, 2019. 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.

If the student's responses for the multiple-choice questions are being hand scored prior to being scanned, the scorer must be careful not to make any marks on the answer sheet except to record the scores in the designated score boxes. Marks elsewhere on the answer sheet will interfere with the accuracy of the scanning.

Part I

Allow a total of 48 credits, 2 credits for each of the following.

(1) 2	(9) 3	(17) . . . . . 4 . . . . .
(2) 1	(10) 3	(18) . . . . . 3 . . . . .
(3) 3	(11) 3	(19) . . . . . 2 . . . . .
(4) 1	(12) 4	(20) . . . . . 2 . . . . .
(5) 2	(13) 1	(21) . . . . . 4 . . . . .
(6) 1	(14) 2	(22) . . . . . 3 . . . . .
(7) 4	(15) 1	(23) . . . . . 4 . . . . .
(8) 4	(16) 3	(24) . . . . . 4 . . . . .

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. Check this web site at: http://www.p12.nysed.gov/assessment/ 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 recommended to be part of the scorer training. Schools are encouraged to incorporate the Model Response Sets into the scorer training or to use them as additional information during scoring. While not reflective of all scenarios, the model responses selected for the Model Response Set illustrate how less common student responses to constructed-response questions may be scored. The Model Response Set will be available on the Department's web site at http://www.nysedregents.org/algebraone/.

General Rules for Applying Mathematics Rubrics

I. General Principles for Rating

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

II. Full-Credit Responses

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

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

III. Appropriate Work

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

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

IV. Multiple Errors

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

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

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

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

Part II

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

(25) **[2]** $x > 80,000$, and correct algebraic work is shown.

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

or

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

or

[1] $x > 80,000$, but a method other than algebraic is used.

or

[1] $x > 80,000$, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(26) **[2]** Linear function is stated and a correct justification is given.

[1] One conceptual error is made, but an appropriate justification is given.

or

[1] Linear function is stated, but the justification is missing or incorrect.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(27) **[2]** −1 and 9, and a correct explanation is written.

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

or

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

or

[1] Appropriate algebraic work is shown to find −1 and 9, but no explanation is written.

[0] −1 and 9, but no work is shown.

or

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(28) **[2]** From 2 to 6 and 14 to 15, and a correct explanation is written.

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

or

[1] Appropriate work is shown, but only one interval is stated correctly.

or

[1] From 2 to 6 and 14 to 15, but no explanation is written.

or

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

[0] 2 to 6 or 14 to 15, but no further correct work is shown.

or

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(29) **[2]** A correct graph is drawn, and a correct justification indicating a positive response is given.

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

or

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

or

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

or

[1] A correct justification is given, but no further correct work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(30) **[2]** 0, -3, and -4 are stated, and correct algebraic work is shown.

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

or

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

or

[1] Appropriate work is shown, but the zeros are stated as ordered pairs.

or

[1] Appropriate work is shown to find $3x(x + 3)(x + 4)$, but no further correct work is shown.

or

[1] 0, -3, and -4, but a method other than algebraic is used.

or

[1] 0, -3, and -4, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(31) **[2]** Los Angeles, and a correct explanation is written.

[1] One conceptual error is made.

or

[1] Los Angeles, but the explanation is incomplete.

[0] Los Angeles, but the explanation is missing or incorrect.

or

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(32) **[2]** $\pm\sqrt{20}$, 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 answer is expressed as a decimal.

or

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

or

[1] $\pm\sqrt{20}$, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

Part III

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

(33) **[4]** $V = 450(1.025)^t$, and a correct justification indicating a negative response is given.

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

or

[3] Appropriate work is shown, but the expression $450(1.025)^t$ is written.

or

[3] Appropriate work is shown, but the equation is not written in terms of V and t.

or

[3] $V = 450(1.025)^t$, and 737.38, the correct value after 20 years is found, but no further correct work is shown.

or

[3] An incorrect exponential equation in terms of V and t is written and used appropriately.

[2] $V = 450(1.025)^t$, but no further correct work is shown.

[1] The expression $450(1.025)^t$ is written, but no further correct work is shown.

[0] No is stated, but no work is shown.

or

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(34) **[4]** $y = 1.9x + 29.8$, 0.3, and a correct explanation is written.

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

or

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

or

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

or

[3] An incorrect linear regression equation is written, but a correlation coefficient is stated and explained appropriately.

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

or

[2] $y = 1.9x + 29.8$, but no further correct work is shown.

[1] The expression $1.9x + 29.8$ is written, but no further correct work is shown.

or

[1] 0.3 is stated, but no further correct work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(35) **[4]** $7.50x + 12.50y \leq 100$ is stated and graphed correctly, 13, and a correct explanation is written.

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

or

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

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

or

[2] $7.50x + 12.50y \leq 100$ is stated and graphed correctly, but no further correct work is shown.

or

[2] 13, and a correct explanation is written, but no further correct work is shown.

[1] $7.50x + 12.50y \leq 100$ is written, but no further correct work is shown.

or

[1] 13 is stated, but no further correct work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(36) **[4]** A correct graph is drawn, 6 a.m. to 4 p.m. and -3 are stated.

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

or

[3] Appropriate work is shown, but the interval or rate of change is missing or incorrect.

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

or

[2] A correct graph is drawn, but no further correct work is shown.

or

[2] 6 a.m. to 4 p.m. and -3 are stated, but the graph is missing.

[1] 6 a.m. to 4 p.m. or -3 is stated, but no further correct work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

Part IV

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

(37) **[6]** $b + t = 15$ and $2b + 3t = 38$ are written and graphed correctly and at least one is labeled, and a correct explanation indicating a negative response is written.

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

or

[5] Appropriate work is shown, but the explanation is incomplete or not based on the graph.

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

or

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

[3] An appropriate explanation is written based on a correct system of equations, but no graph is drawn.

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

or

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

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

or

[1] Only an explanation indicating a negative response is written, based on a method other than graphing.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

Map to the Core Learning Standards
Algebra I
January 2019

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

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

Regents Examination in Algebra I

January 2019

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

The *Chart for Determining the Final Examination Score for the January 2019 Regents Examination in Algebra I* will be posted on the Department's web site at: http://www.p12.nysed.gov/assessment/ by Wednesday, January 23, 2019. Conversion charts provided for previous administrations of the Regents Examination in Algebra I must NOT be used to determine students' final scores for this administration.

Online Submission of Teacher Evaluations of the Test to the Department

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

1. Go to http://www.forms2.nysed.gov/emsc/osa/exameval/reexameval.cfm.

2. Select the test title.

3. Complete the required demographic fields.

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

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

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

ALGEBRA I

Wednesday, January 23, 2019 — 1:15 to 4:15 p.m.

MODEL RESPONSE SET

Table of Contents

25 Solve algebraically for x: $\quad 3600 + 1.02x < 2000 + 1.04x$

$$\begin{array}{r} -2000 \qquad -2000 \end{array}$$

$$1600 + 1.02x < 1.04x$$
$$-1.02x \qquad -1.02x$$

$$\frac{1600}{.02} < \frac{.02x}{.02}$$

$$80000 < x$$

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

25 Solve algebraically for x: $3600 + 1.02x < 2000 + 1.04x$

$$ -1.02x \phantom{< 2000} -1.02x$$

$$3600 < 2000 + .02x$$
$$-2000 \quad -2000$$

$$\frac{1600}{.02} < \frac{.02x}{.02}$$

$$x = 80,000$$

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

25 Solve algebraically for x: $3600 + 1.02x < 2000 + 1.04x$

$$3600 + 1.02x < 2000 + 1.04x$$
$$-3600 \qquad\qquad -3600$$

$$1.02x < -1600 + 1.04x$$
$$-1.04x \qquad\qquad -1.04x$$

$$-.02x < -1600$$
$$-.02 \qquad -.02$$

$$x < -80,000$$

Score 0: The student made an error when dividing -1600 by $-.02$ and an error writing the inequality sign.

26 The number of people who attended a school's last six basketball games increased as the team neared the state sectional games. The table below shows the data.

Game	13	14	15	16	17	18
Attendance	348	435	522	609	696	783

State the type of function that best fits the given data. Justify your choice of a function type.

linear, This is because there is a constant rate of change of 87.

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

26 The number of people who attended a school's last six basketball games increased as the team neared the state sectional games. The table below shows the data.

Game	13	14	15	16	17	18
Attendance	348	435	522	609	696	783

State the type of function that best fits the given data. Justify your choice of a function type.

A linear because it is a straight line due to the fact that it has a constant slope.

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

26 The number of people who attended a school's last six basketball games increased as the team neared the state sectional games. The table below shows the data.

Game	13	14	15	16	17	18
Attendance	348	435	522	609	696	783

State the type of function that best fits the given data. Justify your choice of a function type.

$(13, 348)$ $(14, 435)$ $435 + 87 = 522$

$$\frac{435 - 348}{14 - 13} = 87$$

$\boxed{slope = 87}$

Score 1: The student gave a correct justification, but did not state the type of function.

26 The number of people who attended a school's last six basketball games increased as the team neared the state sectional games. The table below shows the data.

Game	13	14	15	16	17	18
Attendance	348	435	522	609	696	783

State the type of function that best fits the given data. Justify your choice of a function type.

Exponential because r = .9931

Score 1: The student made a conceptual error.

26 The number of people who attended a school's last six basketball games increased as the team neared the state sectional games. The table below shows the data.

Game	13	14	15	16	17	18
Attendance	348	435	522	609	696	783

State the type of function that best fits the given data. Justify your choice of a function type.

The function increases.

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

27 Solve $x^2 - 8x - 9 = 0$ algebraically.

$$X = \frac{-(-8) \pm \sqrt{(-8)^2 - 4(1)(-9)}}{2(1)}$$

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

$$\frac{8 \pm \sqrt{64 + 36}}{2} = \frac{8 \pm \sqrt{100}}{2}$$

$$= \frac{8 \pm 10}{2}$$

$\boxed{X = 9}$ $X = \frac{8 + 10}{2} = \frac{18}{2}$

$\boxed{X = -1}$ $X = \frac{8 - 10}{2} = \frac{-2}{2}$

Explain the first step you used to solve the given equation.

I had to use the quadratic formula and substitute then solve.

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

27 Solve $x^2 - 8x - 9 = 0$ algebraically.

$$(x-9)(x+1) = 0$$

$$x - 9 = 0 \qquad\qquad x + 1 = 0$$
$$+9 \quad +9 \qquad\qquad -1 \quad -1$$
$$\boxed{x = 9} \qquad\qquad \boxed{x = -1}$$

Explain the first step you used to solve the given equation.

The first step I used
was factoring the equation
algebraically.

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

27 Solve $x^2 - 8x - 9 = 0$ algebraically.

$$X^2 - 8x - 9 = 0 \qquad A = 1$$
$$(X^2 + 1x) + (-9x - 9) = 0 \qquad \begin{array}{l} B = -8 \\ C = -9 \end{array}$$
$$X(x + 1) - 9(x + 1) = 0 \qquad (A)(C)$$
$$\qquad\qquad\qquad\qquad\qquad -9$$
$$0 = (X - 9) \mid (x + 1) = 0$$
$$+9 \quad +9 \mid -1 \quad -1$$
$$\boxed{9 = X} \qquad \boxed{X = -1}$$

Explain the first step you used to solve the given equation.

The first step I did was to group with factors of (A)(C) that add up to B

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

27 Solve $x^2 - 8x - 9 = 0$ algebraically.

$$x^2 - 8x = 9$$
$$x^2 - 8x + 16 = 9 + 16$$
$$(x-4)^2 = 25$$
$$(x-4) = 5$$
$$x = 9$$

Explain the first step you used to solve the given equation.

I took the nine and switched it's polarity from negative to positive and moved it to the other side.

Score 1: The student did not write both values when calculating the square root of 25.

27 Solve $x^2 - 8x - 9 = 0$ algebraically.

$$(x-9)(x+1)=0$$

$$x-9=0 \qquad x+1=0$$
$$+9 \ +9 \qquad \ -1 \ -1$$
$$x=9 \qquad x=-1$$

Explain the first step you used to solve the given equation.

The first step that I did was to distribute the binomeal.

Score 1: The student wrote an incorrect explanation.

27 Solve $x^2 - 8x - 9 = 0$ algebraically.

$$(x-1)(x+9) = 0$$

$$x = 1 \qquad x = -9$$

Explain the first step you used to solve the given equation.

I factored the trinomial.

Score 1: The student reversed the signs when factoring.

27 Solve $x^2 - 8x - 9 = 0$ algebraically.

$$x^2 - 8x = 9$$

$$(x-8)^2 + \boxed{64} = 9 + \boxed{64}$$

$$\sqrt{(x-8)^2} = \sqrt{73}$$

$$x - 8 = \pm\sqrt{73}$$

$$\boxed{x = 8 \pm \sqrt{73}}$$

Explain the first step you used to solve the given equation.

I added 9 to both sides
to complete the square

Score 1:   The student made a conceptual error in completing the square, but explained the first step correctly.

27 Solve $x^2 - 8x - 9 = 0$ algebraically.

$$x^2 - 8x - 9 + 27 - 27$$
$$(x^2 - 8x + 16) - 27$$
$$(x-4)(x-4) - 27$$

$x - 4 = 0$
$+4 \quad +4$

$\boxed{x = 4}$

$x - 4 - 27 = 0$
$x - 31 = 0$
$+31 \quad +31$

$\boxed{x = 31}$

Explain the first step you used to solve the given equation.

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

28 The graph of $f(t)$ models the height, in feet, that a bee is flying above the ground with respect to the time it traveled in t seconds.
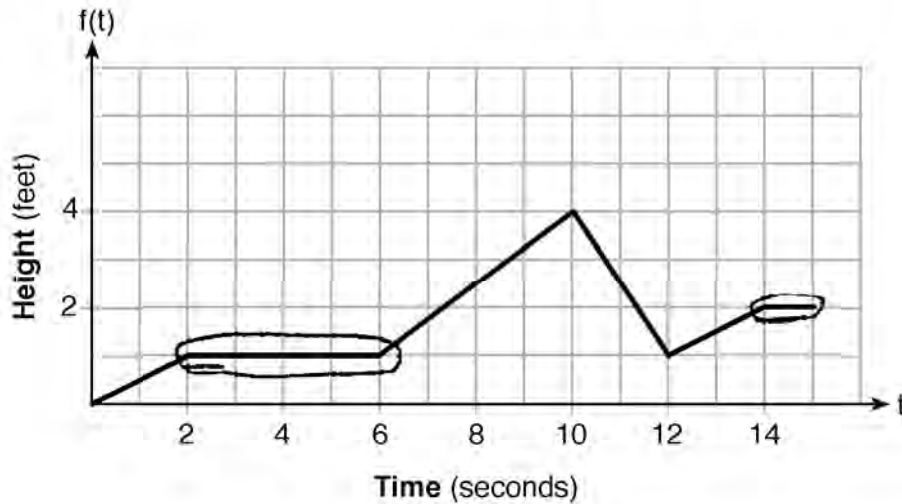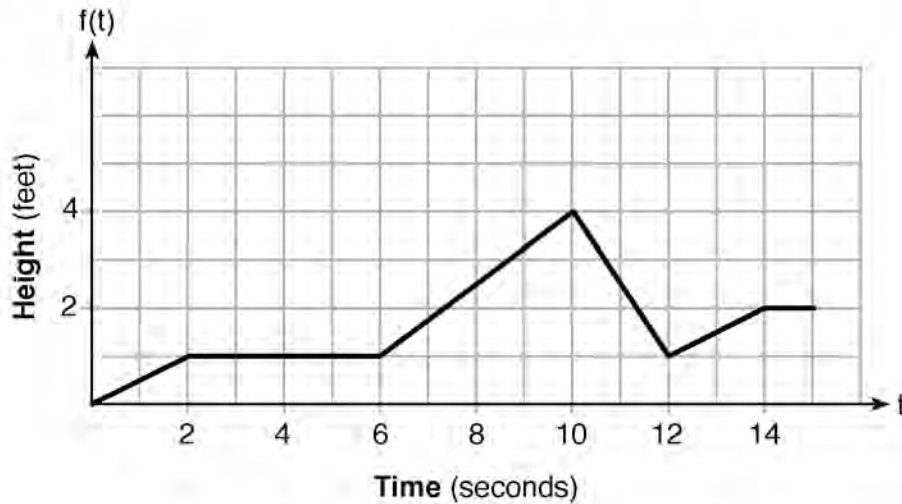

State all time intervals when the bee's rate of change is zero feet per second. Explain your reasoning.

The bee's rate of change is zero feet per second in the 2-6 interval and the 14-15 interval. During those time periods, the bee did not fly up nor down, maintaining a steady rate of zero.

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

28 The graph of $f(t)$ models the height, in feet, that a bee is flying above the ground with respect to the time it traveled in t seconds.
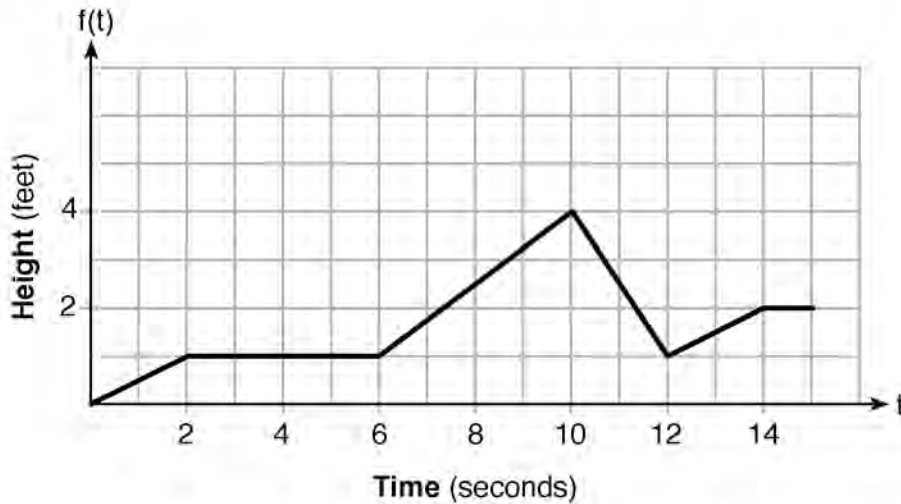

State all time intervals when the bee's rate of change is zero feet per second. Explain your reasoning.

During the time intervals $2 < x < 6$ and $14 < x < 15$, the bee's rate of change is 0. This is because the bee doesn't change the height of its flight pattern during these time intervals.

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

28 The graph of $f(t)$ models the height, in feet, that a bee is flying above the ground with respect to the time it traveled in t seconds.
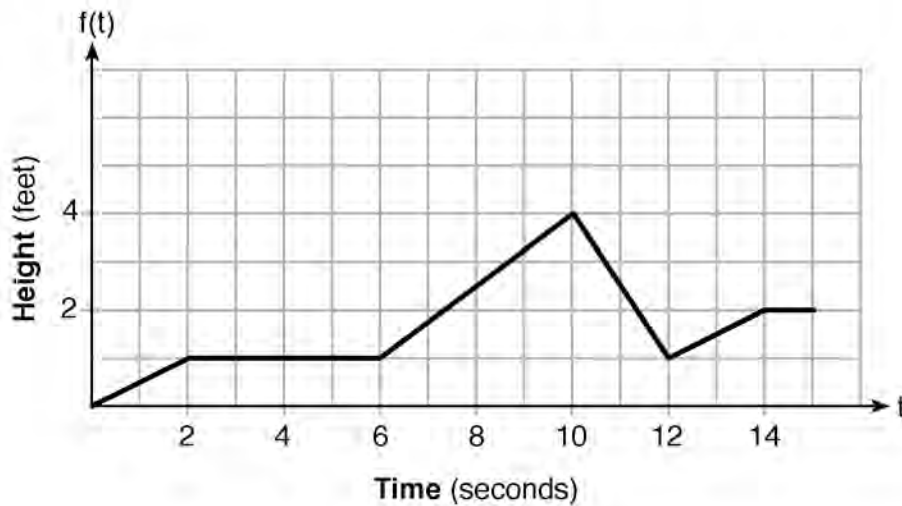

State all time intervals when the bee's rate of change is zero feet per second. Explain your reasoning.

The bee's rate of change is zero feet per second when the intervals are [2,6] and [14, 15]. When $2 \le t \le 6$, the bee is 1 foot above ground. When $14 \le t \le 15$, the bee is 2 feet above ground. During these time periods, the slope is zero.

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

28 The graph of $f(t)$ models the height, in feet, that a bee is flying above the ground with respect to the time it traveled in t seconds.
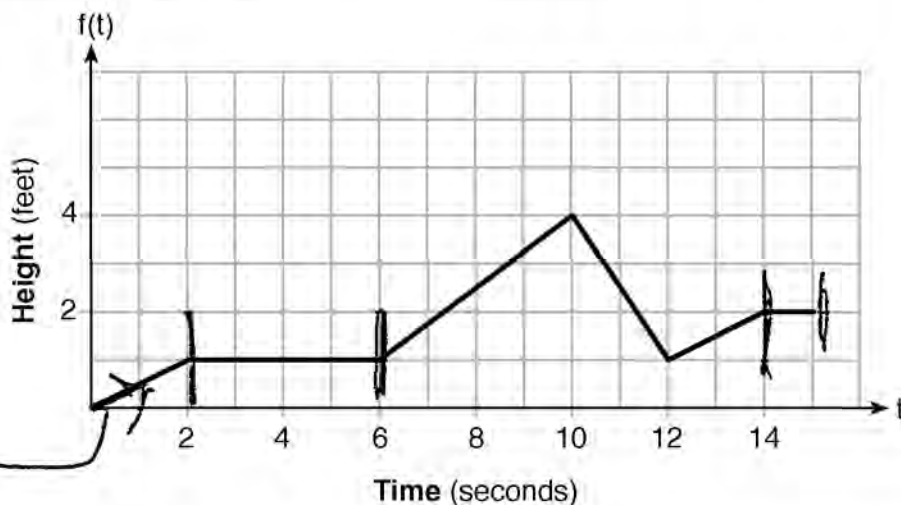

State all time intervals when the bee's rate of change is zero feet per second. Explain your reasoning.

BETWEEN 2 and 4, and 4 and 6 seconds because the height did not change.

Score 1: The student did not state all the intervals, but wrote a correct explanation.

28 The graph of $f(t)$ models the height, in feet, that a bee is flying above the ground with respect to the time it traveled in t seconds.

State all time intervals when the bee's rate of change is zero feet per second. Explain your reasoning.

$[2, 6] \ [14, 15)$

Score 1: The student did not write an explanation.

28 The graph of $f(t)$ models the height, in feet, that a bee is flying above the ground with respect to the time it traveled in t seconds.

State all time intervals when the bee's rate of change is zero feet per second. Explain your reasoning.
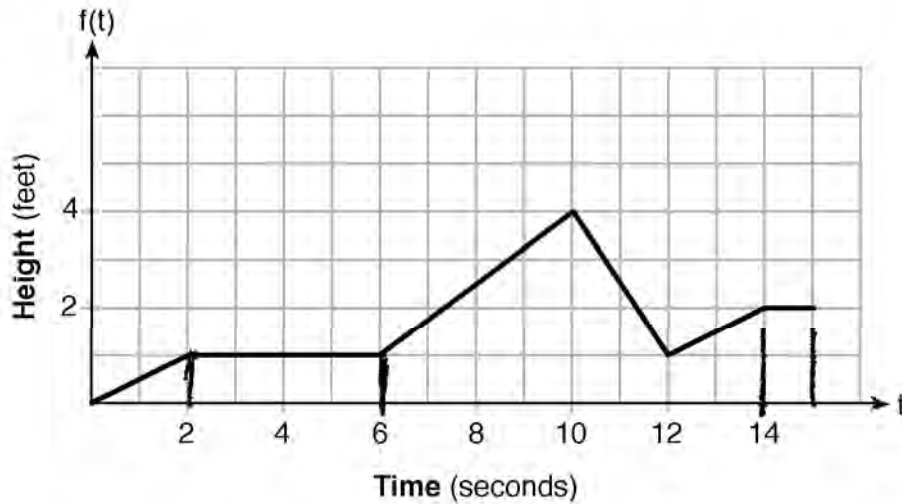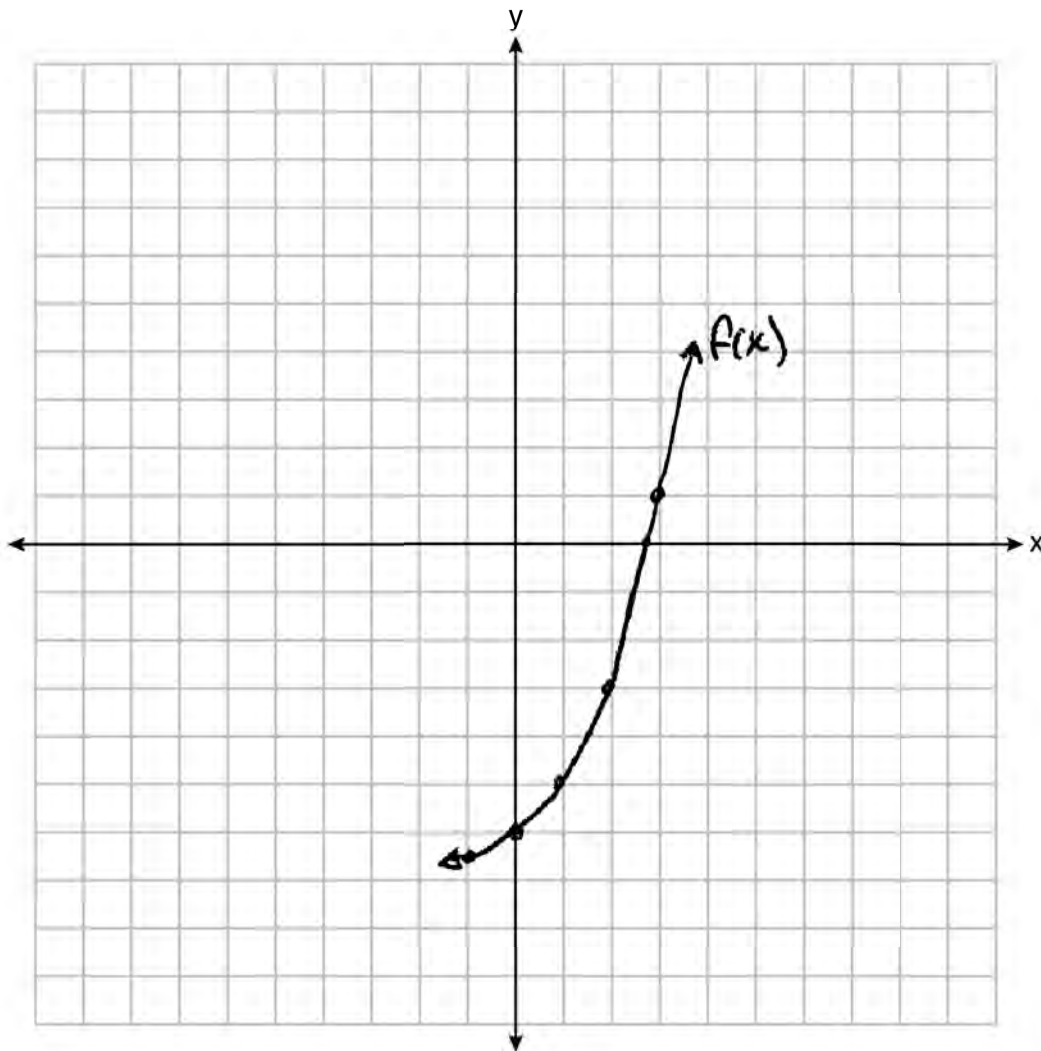
2 – 6 Seconds

Score 0: The student stated only one interval and did not write an explanation.

29 Graph the function $f(x) = 2^x - 7$ on the set of axes below.

If $g(x) = 1.5x - 3$, determine if $f(x) > g(x)$ when $x = 4$. Justify your answer.
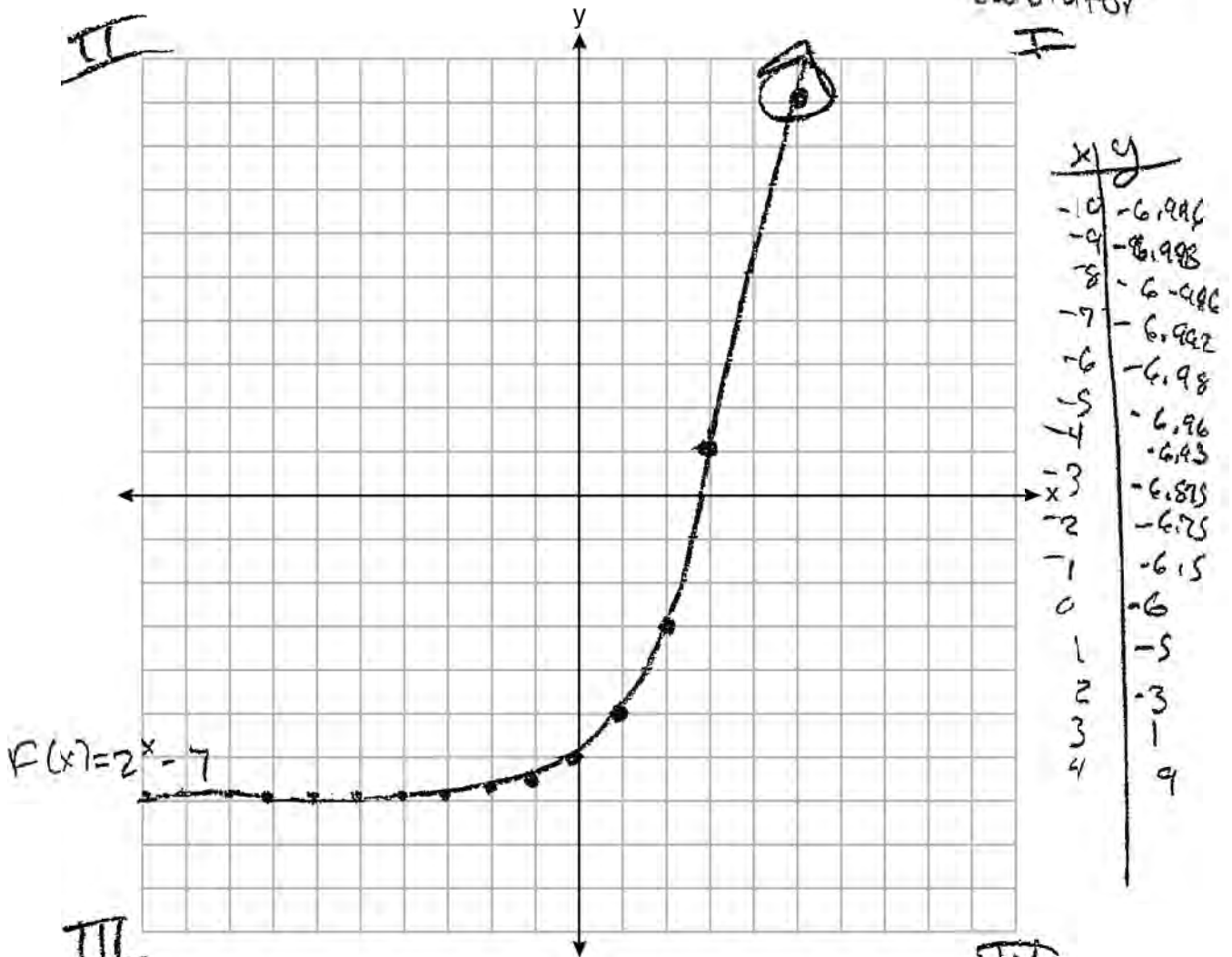
$f(4) = 2^4 - 7 = 9$

$g(4) = 1.5(4) - 3 = 3$

when x is 4
$f(x) > g(x)$

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

29 Graph the function $f(x) = 2^x - 7$ on the set of axes below.

*used graphing calculator

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

x	y
-10	-6.996
-9	-6.998
-8	-6.996
-7	-6.992
-6	-6.98
-5	-6.96
-4	-6.93
-3	-6.875
-2	-6.75
-1	-6.5
0	-6
1	-5
2	-3
3	1
4	9

II   I

III   IV

If $g(x) = 1.5x - 3$, determine if $f(x) > g(x)$ when $x = 4$. Justify your answer.
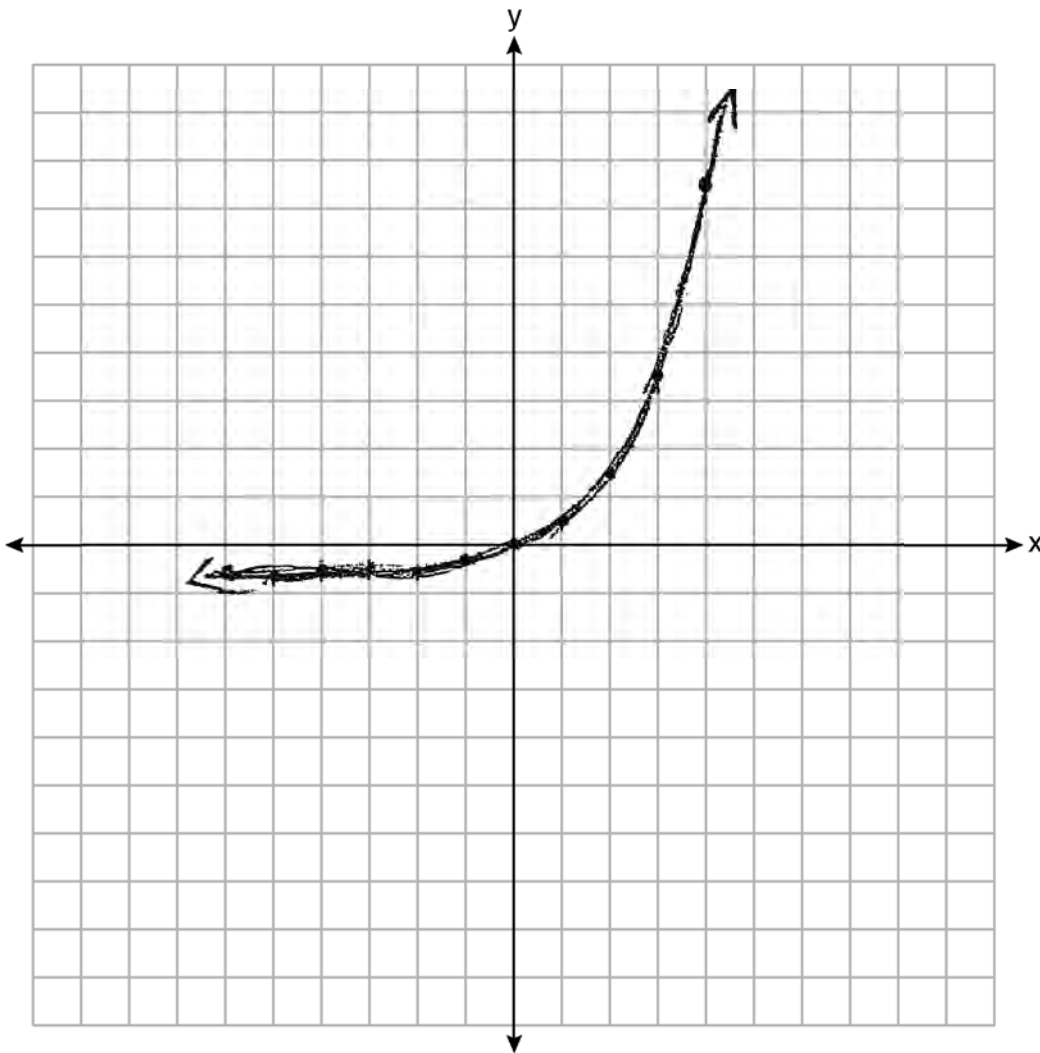
$f(4) = 9$

$g(4) = 1.5(4) - 3$
$g(4) = 6 - 3$
$g(4) = 3$

$f(x) > g(x)$
$9 > 3$ ✓

$f(x)$ is greater than $g(x)$.

Score 1: The student made one error by graphing (5,9).

29 Graph the function $f(x) = 2^x - 7$ on the set of axes below.

If $g(x) = 1.5x - 3$, determine if $f(x) > g(x)$ when $x = 4$. Justify your answer.

$g(x) = 1.5x - 3$

$f(x) > g(x) \quad x = 4$

$g(x) = 1.5x - 3$
$g(x) = 1.5(4) - 3$
$g(x) = 6 - 3$
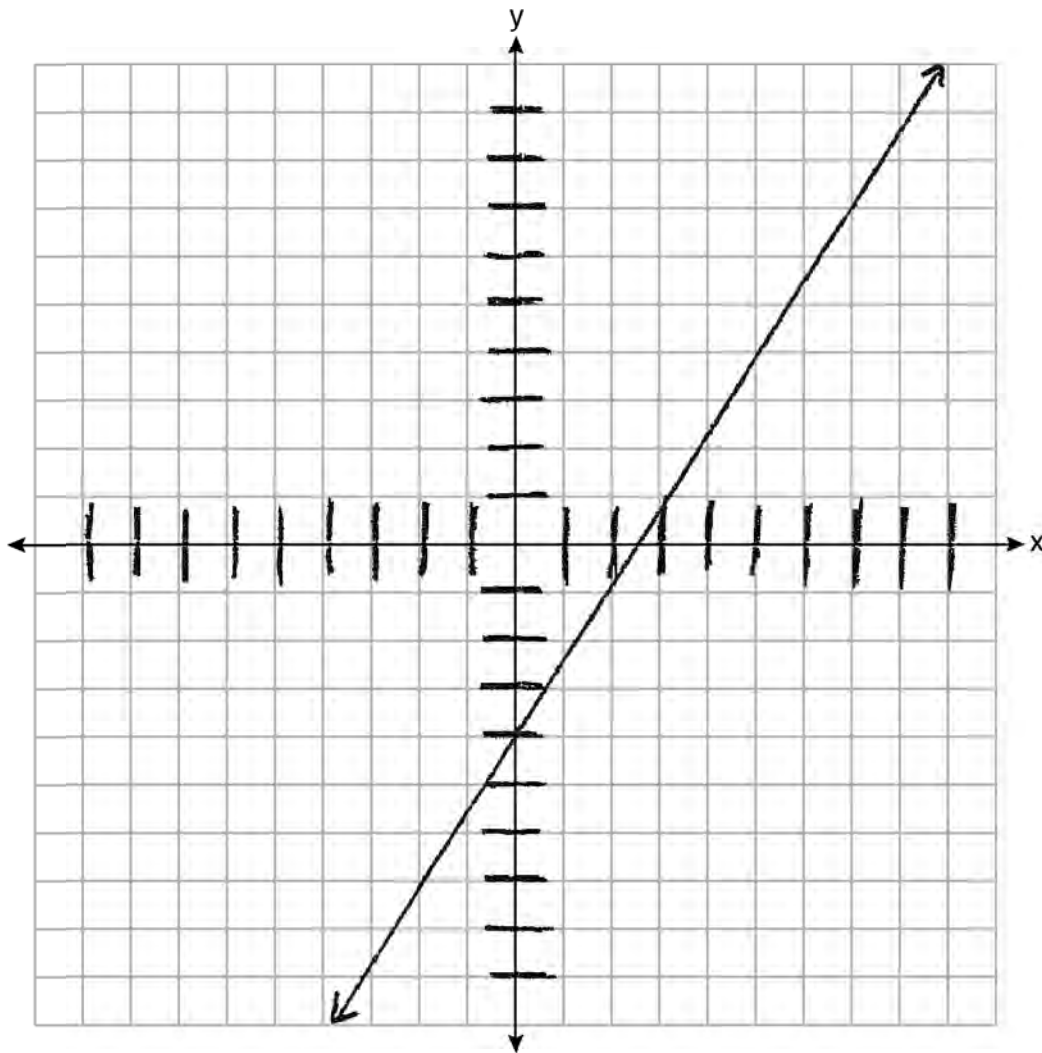$g(x) = 3$

$\angle$

$f(x) = 2^x - 7$
$f(x) = 2^4 - 7$
$f(x) = 9$

The statement is true that when $x = 4$ $f(x)$ is greater than $g(x)$. This is because when x is substituted by 4 in each equation, $f(x)$ has the greater value of 9 while $g(x)$ has the lesser value of $y = 3$

Score 1: The student graphed $f(x)$ incorrectly, but gave a correct justification.

29 Graph the function $f(x) = 2^x - 7$ on the set of axes below.

If $g(x) = 1.5x - 3$, determine if $f(x) > g(x)$ when $x = 4$. Justify your answer.

$1.5(4)-3 \quad 2^4-7$

$3 \diagdown 9$

$9 > 3$

Yes, $9 > 3$

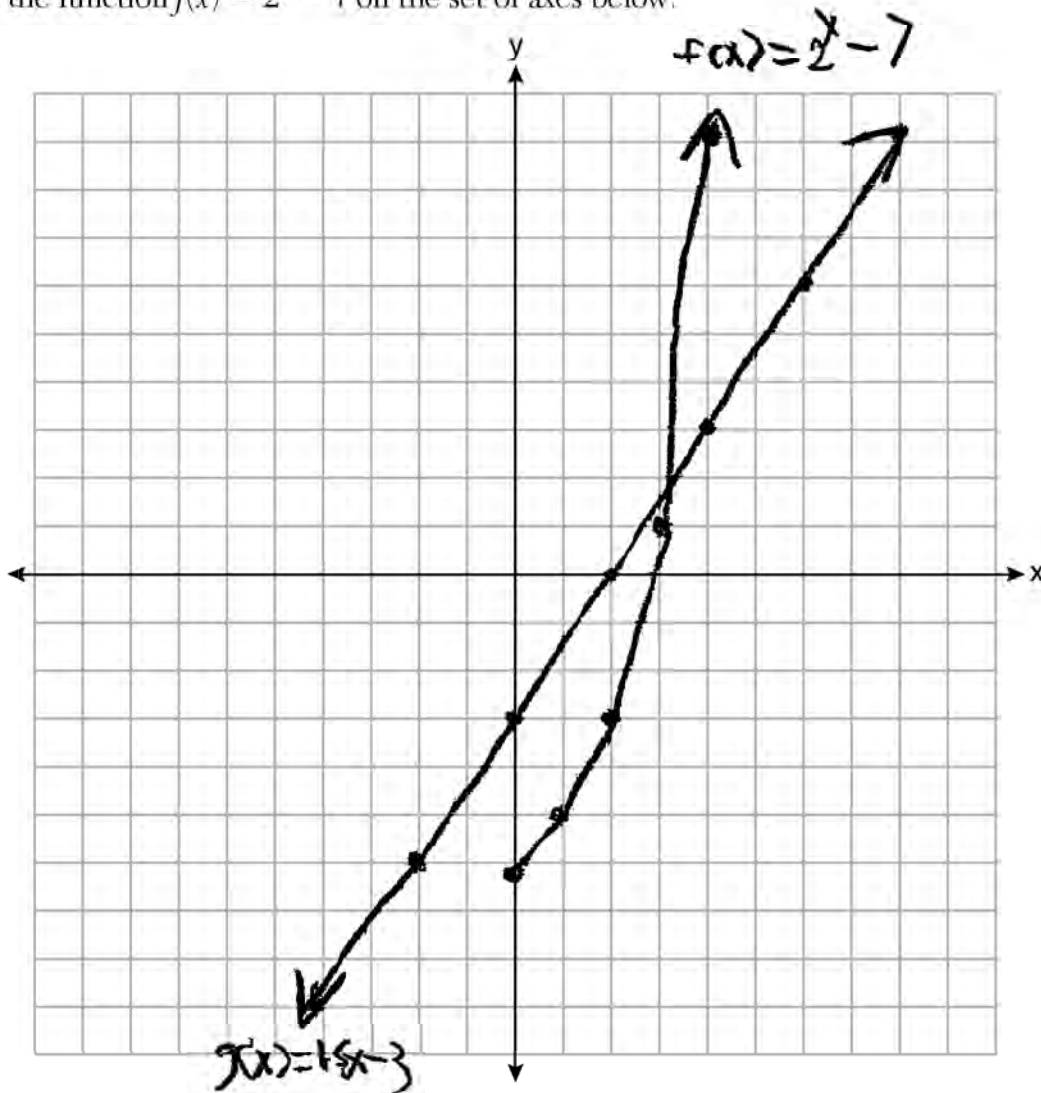(9 is greater than 3)

Score 1: The student gave a correct justification.

29 Graph the function $f(x) = 2^x - 7$ on the set of axes below.

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

$g(x) = 1.5x - 3$

If $g(x) = 1.5x - 3$, determine if $f(x) > g(x)$ when $x = 4$. Justify your answer.

yes becouse (f) is a exponential.

Score 0: The student graphed $f(x)$ for $x \geq 0$ and gave an incomplete justification.

30 Determine algebraically the ~~zeros~~ roots of $f(x) = 3x^3 + 21x^2 + 36x$.

set equal to zero

$$0 = 3x^3 + 21x^2 + 36x$$

$$0 = 3x(x^2 + 7x + 12) \quad \frac{\times 12}{4, 3} \quad +7$$

$$0 = 3x(x+4)(x+3)$$

$\frac{3x}{3} = \frac{0}{3}$	$x + 4 = 0$ $\quad -4 \ -4$	$x + 3 = 0$ $\quad -3 \ \ -3$
$x = 0$	$x = -4$	$x = -3$

The zeros are 0, -4, and -3.

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

30 Determine algebraically the zeros of $f(x) = 3x^3 + 21x^2 + 36x$.

$$0 = 3x(x^2 + 7x + 12)$$

$$0 = x^2 + 7x + 12$$

$$(x + 3)(x + 4)$$

$$x + 3 = 0 \qquad x + 4 = 0$$
$$-3 \; -3 \qquad \quad -4 \; -4$$

$$x = -3 \qquad x = -4$$

$$\{-3, -4\}$$

Score 1: The student did not continue to include $3x$ when factoring the trinomial completely.

30 Determine algebraically the zeros of $f(x) = 3x^3 + 21x^2 + 36x$.

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

$$x = \frac{-21 \pm \sqrt{441 - 432}}{6}$$

$$x = \frac{-21 \pm \sqrt{9}}{6}$$

$$x = \frac{-21 \pm 3}{6}$$

$$x = \frac{-24}{6} \qquad x = \frac{-18}{6}$$

Score 1: The student made a conceptual error by using the quadratic formula on a cubic equation.

30 Determine algebraically the zeros of $f(x) = 3x^3 + 21x^2 + 36x$.

$$x\left(3x^2 + 21x + 36\right)$$

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

31 Santina is considering a vacation and has obtained high-temperature data from the last two weeks for Miami and Los Angeles.

Miami	76	75	83	73	60	66	76
	81	83	85	83	87	80	80

7.22523

Los Angeles	74	63	65	67	65	65	65
	62	62	72	69	64	64	61

3.639

Which location has the least variability in temperatures? Explain how you arrived at your answer.

Los Angeles; The standard deviation for LA is 3.64 while the standard
↑
rounded

3.64 < 7.23 deviation for Miami is 7.23.
↑
rounded

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

31 Santina is considering a vacation and has obtained high-temperature data from the last two weeks for Miami and Los Angeles.

Miami	76	75	83	73	60	66	76
	81	83	85	83	87	80	80

27 range

Los Angeles	74	63	65	67	65	65	65
	62	62	72	69	64	64	61

74 − 61 = 13 range

Which location has the least variability in temperatures? Explain how you arrived at your answer.

60, 66, 63, 75, 76, 76, 80 80, 81, 83 83 83

Los Angeles has more consistent temperatures I got this answer by finding the range of the data tables and I got 13 for the range for Los Angeles and 27 for the range in Miami.

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

31 Santina is considering a vacation and has obtained high-temperature data from the last two weeks for Miami and Los Angeles.

Miami	76	75	83	73	60	66	76
	81	83	85	83	87	80	80

Los Angeles	74	63	65	67	65	65	65
	62	62	72	69	64	64	61

Which location has the least variability in temperatures? Explain how you arrived at your answer.

Los Angeles

Q1 = 63

Q3 = 67

IQR = 67 - 63 = 4

Miami

Q1 = 75

Q3 = 83

IQR = 83 - 75 = 8

Score 1:   The student gave a justification and not an explanation.

31 Santina is considering a vacation and has obtained high-temperature data from the last two weeks for Miami and Los Angeles.

Miami	76	75	83	73	60	66	76
	81	83	85	83	87	80	80

$87 - 60 = 27°$

Los Angeles	74	63	65	67	65	65	65
	62	62	72	69	64	64	61

$72 - 61 = 11°$

Which location has the least variability in temperatures? Explain how you arrived at your answer.

LA, they're closer.

Score 0: The student made an error calculating the range for Los Angeles and wrote an incomplete explanation.

32 Solve the quadratic equation below for the exact values of x.

$$4x^2 - 5 = 75$$

$$+5 \quad +5$$

$$\frac{\cancel{4}x^2}{\cancel{4}} = \frac{80}{4}$$

$$\sqrt{x^2} = \sqrt{20}$$

$$x = \pm\sqrt{20}$$

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

32 Solve the quadratic equation below for the exact values of x.

$$4x^2 - 5 = 75$$

$$4x^2 - 80 = 0$$

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

$$x = \frac{-0 \pm \sqrt{(0)^2 - 4(4)(-80)}}{2(4)}$$

$$x = \frac{0 \pm \sqrt{0 + 1280}}{8}$$

$$x = \frac{0 \pm \sqrt{1280}}{8}$$

$$x = \frac{+\sqrt{1280}}{8} \qquad x = \frac{-\sqrt{1280}}{8}$$

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

32 Solve the quadratic equation below for the exact values of x.

$$4x^2 - 5 = 75$$

$$+5 +5$$

$$\frac{4x^2}{4} = \frac{80}{4}$$

$$\sqrt{x^2} = \sqrt{20}$$

$$\boxed{x = \pm\ 4.4721135455}$$

Score 1: The student wrote their final answer as a decimal.

32 Solve the quadratic equation below for the exact values of x.

$$4x^2 - 5 = 75$$

$a = 4$

$b = -5$

$c = 75$

$$X = \frac{-5 \pm \sqrt{-5^2 - 4(4)(75)}}{2(4)}$$

$$X = \frac{-5 \pm \sqrt{-5^2 - 1200}}{8}$$

$$X = \frac{-5 \pm \sqrt{-1225}}{8}$$

$$X = -5 \pm \sqrt{153.125}$$

$$X = -7.37436867$$

Score 0: The student made multiple errors.

33 Marilyn collects old dolls. She purchases a doll for $450. Research shows this doll's value will increase by 2.5% each year.

Write an equation that determines the value, V, of the doll t years after purchase.

$$V = 450(0.025 + 1)^t$$

Assuming the doll's rate of appreciation remains the same, will the doll's value be doubled in 20 years? Justify your reasoning.

$$V = 450(0.025 + 1)^{20}$$

$$V = \$737.38$$

$$450 \times 2 \quad \$900$$

No, the value of the doll after 20 years is $737.38 not $900, which is the double of $450, the original price.

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

33 Marilyn collects old dolls. She purchases a doll for $450. Research shows this doll's value will increase by 2.5% each year.

Write an equation that determines the value, V, of the doll t years after purchase.

$$V(t) = 450\,(1.025)^t$$

Assuming the doll's rate of appreciation remains the same, will the doll's value be doubled in 20 years? Justify your reasoning.

$$V(t) = 450\,(1.025)^{20}$$
$$= 737.3773981$$

$$737.38 < 2(450)$$
$$737.38 < 900$$

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

33 Marilyn collects old dolls. She purchases a doll for $450. Research shows this doll's value will increase by 2.5% each year.

Write an equation that determines the value, V, of the doll t years after purchase.

$1 + .025$

$y = 450(1.025)^t$ *

Assuming the doll's rate of appreciation remains the same, will the doll's value be doubled in 20 years? Justify your reasoning.

$y = 450(1.025)^{20}$

No in 20 years it will be $737.38 which isn't doubled.

Score 3:   The student did not write the equation in terms of V and t.

33 Marilyn collects old dolls. She purchases a doll for $450. Research shows this doll's value will increase by 2.5% each year.

Write an equation that determines the value, V, of the doll t years after purchase.

$$y = 450(1 + .0025)^x$$

Assuming the doll's rate of appreciation remains the same, will the doll's value be doubled in 20 years? Justify your reasoning.

$$y = 450(1 + .0025)^{20}$$

NO. It will be worth $473.04

Score 2: The student wrote an incorrect equation, but gave an appropriate justification.

33 Marilyn collects old dolls. She purchases a doll for $450. Research shows this doll's value will increase by 2.5% each year.

Write an equation that determines the value, V, of the doll t years after purchase.

$$A = P(1+r)^t$$

too. $A = 450(1 + 0.025)^t$

$A = 450(1.025)^t$

$A = 461.25$.   The value of V is 461.25$

Assuming the doll's rate of appreciation remains the same, will the doll's value be doubled in 20 years? Justify your reasoning.

$A = \{450(1 + 0.025)^{20}$

$A = 450(1.025)^{20}$

$A = 450(1.6386164\text{y})$

$A = 737.37$

Yes the value will be doubled in 20 years because in one the value is 461.25 whereas in 20 years. the value is 737.37$ where it got increase.

Score 1:   The student did not write the equation in terms of V, rounded incorrectly, and gave an incorrect justification.

33 Marilyn collects old dolls. She purchases a doll for $450. Research shows this doll's value will increase by 2.5% each year.

Write an equation that determines the value, V, of the doll t years after purchase.

$$450(1+.0025)^x$$

Assuming the doll's rate of appreciation remains the same, will the doll's value be doubled in 20 years? Justify your reasoning.

$$450(1+.0025)^{20}$$

Score 0: The student made multiple errors.

34 The data given in the table below show some of the results of a study comparing the height of a certain breed of dog, based upon its mass.

Mass (kg)	4.5	5	4	3.5	5.5	5	5	4	4	6	3.5	5.5
Height (cm)	41	40	35	38	43	44	37	39	42	44	31	30

Write the linear regression equation for these data, where x is the mass and y is the height. Round all values to the *nearest tenth*.

$$y = 1.9x + 29.8$$

State the value of the correlation coefficient to the *nearest tenth*, and explain what it indicates.

$r = .3$ It is a positive weak correlation.

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

34 The data given in the table below show some of the results of a study comparing the height of a certain breed of dog, based upon its mass.

Mass (kg)	4.5	5	4	3.5	5.5	5	5	4	4	6	3.5	5.5
Height (cm)	41	40	35	38	43	44	37	39	42	44	31	30

Write the linear regression equation for these data, where x is the mass and y is the height. Round all values to the *nearest tenth*.

$$f(x) = 1.9x + 29.8$$

State the value of the correlation coefficient to the *nearest tenth*, and explain what it indicates.

.3   It indicates that there is not a strong correlation

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

34 The data given in the table below show some of the results of a study comparing the height of a certain breed of dog, based upon its mass.

Mass (kg)	4.5	5	4	3.5	5.5	5	5	4	4	6	3.5	5.5
Height (cm)	41	40	35	38	43	44	37	39	42	44	31	30

Write the linear regression equation for these data, where *x* is the mass and *y* is the height. Round all values to the *nearest tenth*.

$$y = 1.9x + 29.8$$

State the value of the correlation coefficient to the *nearest tenth*, and explain what it indicates.

r = .8

This means that this data is not strong

Score 3: The student indicated that the data were weak, not the correlation coefficient.

34 The data given in the table below show some of the results of a study comparing the height of a certain breed of dog, based upon its mass.

Mass (kg)	4.5	5	4	3.5	5.5	5	5	4	4	6	3.5	5.5
Height (cm)	41	40	35	38	43	44	37	39	42	44	31	30

Write the linear regression equation for these data, where x is the mass and y is the height. Round all values to the *nearest tenth*.

$$y = 29.8 + 1.9x$$

State the value of the correlation coefficient to the *nearest tenth*, and explain what it indicates.

The correlation coefficient is 1.917x, which represents the correlation between the different heights and weights of each dog.

Score 2: The student wrote a correct equation.

34 The data given in the table below show some of the results of a study comparing the height of a certain breed of dog, based upon its mass.

Mass (kg)	4.5	5	4	3.5	5.5	5	5	4	4	6	3.5	5.5
Height (cm)	41	40	35	38	43	44	37	39	42	44	31	30

Write the linear regression equation for these data, where x is the mass and y is the height. Round all values to the *nearest tenth*.

$$r = 0.3370915809$$

State the value of the correlation coefficient to the *nearest tenth*, and explain what it indicates.

$$r = 0.3$$

This indicates the increase in mass and height.

Score 1: The student wrote a correct correlation coefficient.

34 The data given in the table below show some of the results of a study comparing the height of a certain breed of dog, based upon its mass.

Mass (kg)	4.5	5	4	3.5	5.5	5	5	4	4	6	3.5	5.5
Height (cm)	41	40	35	38	43	44	37	39	42	44	31	30

Write the linear regression equation for these data, where *x* is the mass and *y* is the height. Round all values to the *nearest tenth*.

$$y = 3x + .5$$

State the value of the correlation coefficient to the *nearest tenth*, and explain what it indicates.

The correlation coefficient is 3. It means that when the mass is 3kg the height is .5cm.

Score 0: The student showed no correct work.

35 Myranda received a movie gift card for $100 to her local theater. Matinee tickets cost $7.50 each and evening tickets cost $12.50 each.

If x represents the number of matinee tickets she could purchase, and y represents the number of evening tickets she could purchase, write an inequality that represents all the possible ways Myranda could spend her gift card on movies at the theater.

$$7.5x + 12.50y \leq 100$$

On the set of axes below, graph this inequality.
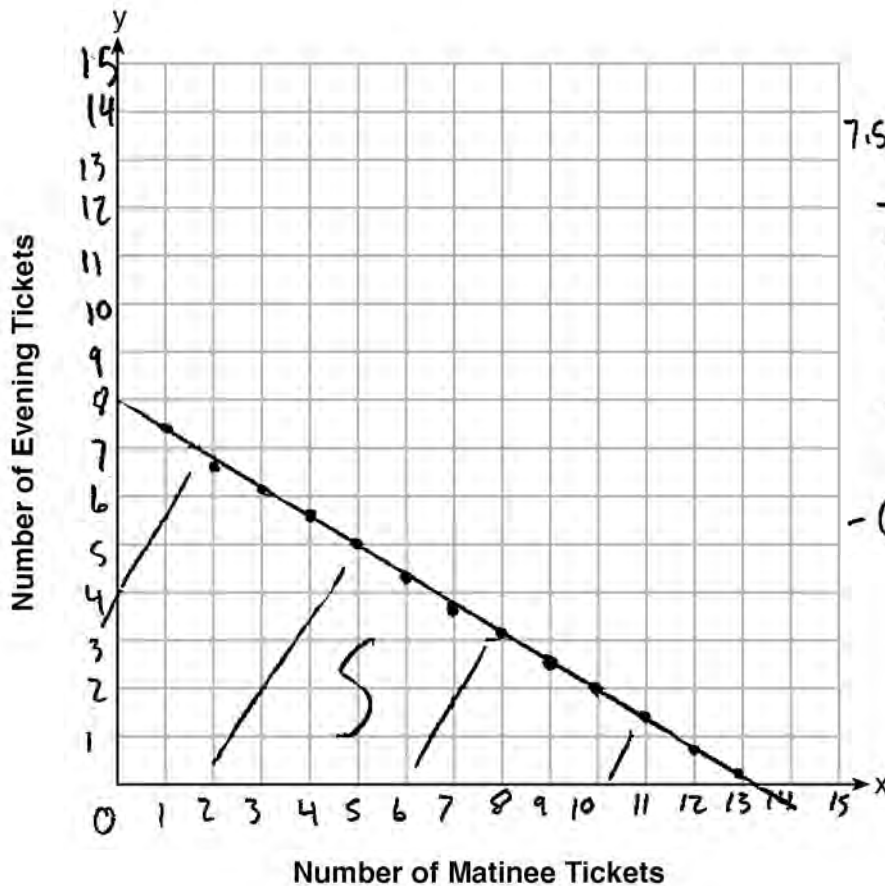
$7.5x + 12.50y \leq 100$
${-12.50y}$
_____
$7.5x \leq 100 - 12.50y$
${-100}$
_____
$7.5x - 100 \leq -12.50y$
_____
${-12.50} \qquad -12.50$
$-0.6x + 8 \geq y$

Number of Matinee Tickets

What is the maximum number of matinee tickets Myranda could purchase with her gift card? Explain your answer.

13, if you do 100 ÷ 7.50 you get 13.3̄ and you round down to the nearest whole number you get 13

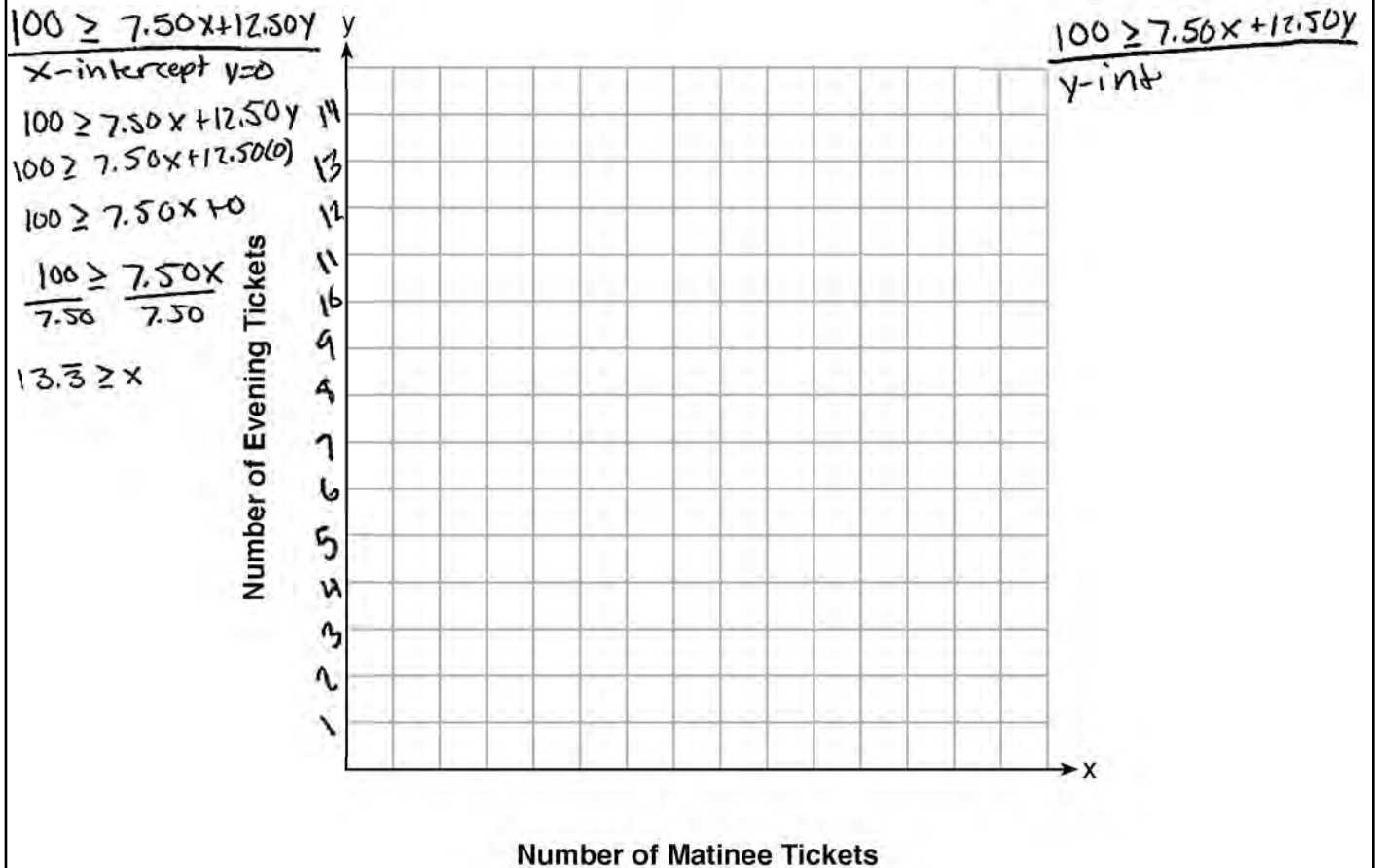**Score 4:** The student gave a complete and correct response.

35 Myranda received a movie gift card for $100 to her local theater. Matinee tickets cost $7.50 each and evening tickets cost $12.50 each.

If *x* represents the number of matinee tickets she could purchase, and *y* represents the number of evening tickets she could purchase, write an inequality that represents all the possible ways Myranda could spend her gift card on movies at the theater.

$$100 \geq 7.50X + 12.50Y$$

On the set of axes below, graph this inequality.

$100 \geq 7.50X + 12.50Y$ y
x-intercept y=0

$100 \geq 7.50x + 12.50y$

$100 \geq 7.50x + 12.50(0)$

$100 \geq 7.50x + 0$

$\dfrac{100}{7.50} \geq \dfrac{7.50x}{7.50}$

$13.\overline{3} \geq x$

$100 \geq 7.50x + 12.50y$
y-int

Number of Evening Tickets

14
13
12
11
10
9
8
7
6
5
4
3
2
1

Number of Matinee Tickets

What is the maximum number of matinee tickets Myranda could purchase with her gift card? Explain your answer.

Since the x-intercept is 13.3̄, the greatest number of matinee tickets is 13.
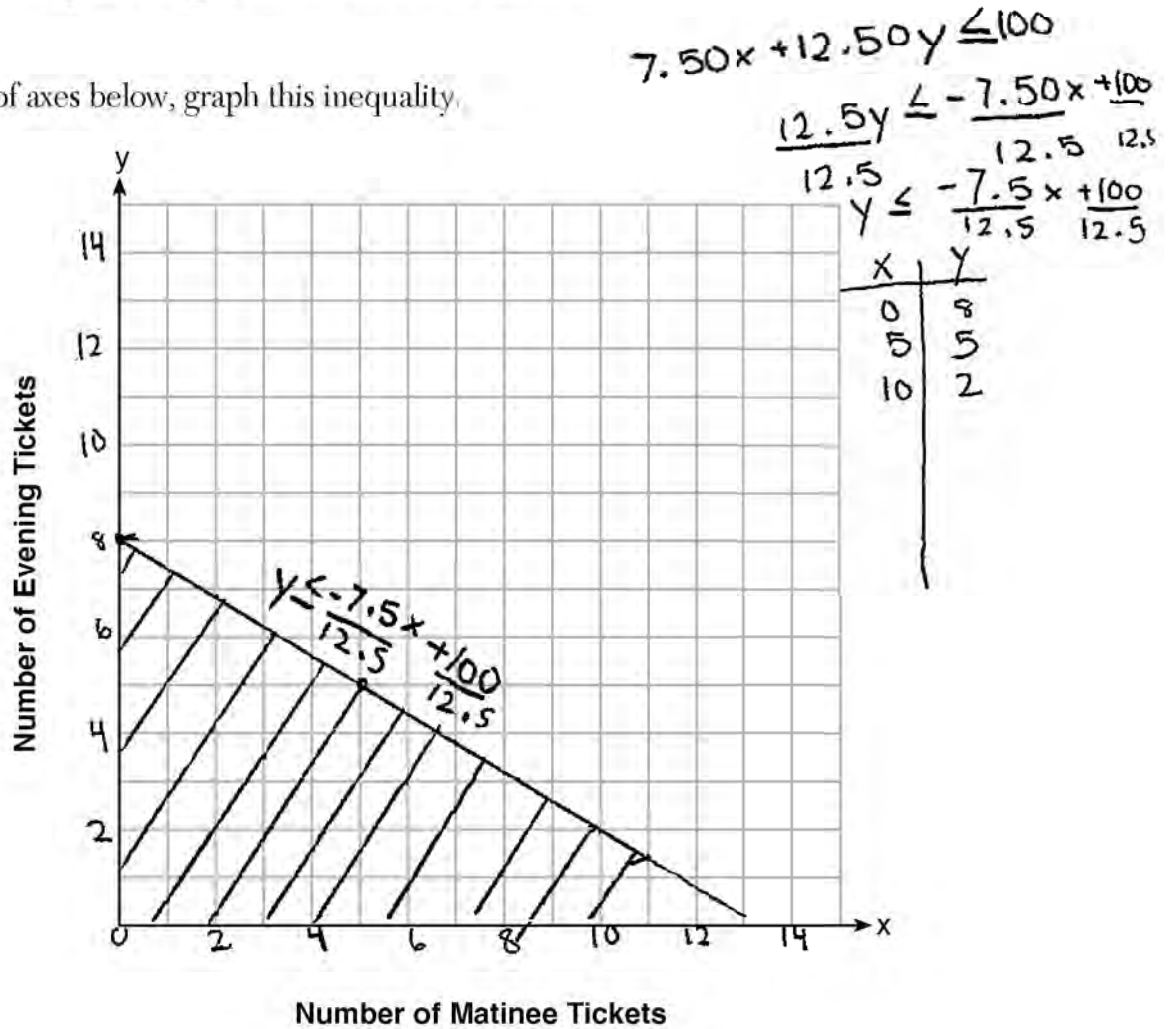
Score 3: The student did not graph the inequality.

35 Myranda received a movie gift card for $100 to her local theater. Matinee tickets cost $7.50 each and evening tickets cost $12.50 each.

If x represents the number of matinee tickets she could purchase, and y represents the number of evening tickets she could purchase, write an inequality that represents all the possible ways Myranda could spend her gift card on movies at the theater.

On the set of axes below, graph this inequality.

$$7.50x + 12.50y \leq 100$$

$$\frac{12.5y}{12.5} \leq \frac{-7.50x + 100}{12.5} \quad \frac{12.5}{12.5}$$

$$y \leq \frac{-7.5x}{12.5} + \frac{100}{12.5}$$

X	Y
0	8
5	5
10	2

Number of Matinee Tickets

(y-axis label: **Number of Evening Tickets**)

On the graph: $y \leq \frac{-7.5x}{12.5} + \frac{100}{12.5}$

What is the maximum number of matinee tickets Myranda could purchase with her gift card? Explain your answer.   maximum = 10 matinee tickets.
the graph is going from evening to matinee + is decreasing so the max she can buy is 10

Score 2: The student wrote a correct inequality and graphed it correctly.

35 Myranda received a movie gift card for $100 to her local theater. Matinee tickets cost $7.50 each and evening tickets cost $12.50 each.

If x represents the number of matinee tickets she could purchase, and y represents the number of evening tickets she could purchase, write an inequality that represents all the possible ways Myranda could spend her gift card on movies at the theater.

On the set of axes below, graph this inequality.

Number of Matinee Tickets

What is the maximum number of matinee tickets Myranda could purchase with her gift card? Explain your answer.

$$\frac{100}{7.50} = 13.\overline{3} \quad \boxed{13}$$

Score 1: The student wrote 13 and gave a justification, not an explanation.

35 Myranda received a movie gift card for $100 to her local theater. Matinee tickets cost $7.50 each and evening tickets cost $12.50 each.

If *x* represents the number of matinee tickets she could purchase, and *y* represents the number of evening tickets she could purchase, write an inequality that represents all the possible ways Myranda could spend her gift card on movies at the theater.

$$7.50x + 12.50y$$

On the set of axes below, graph this inequality.
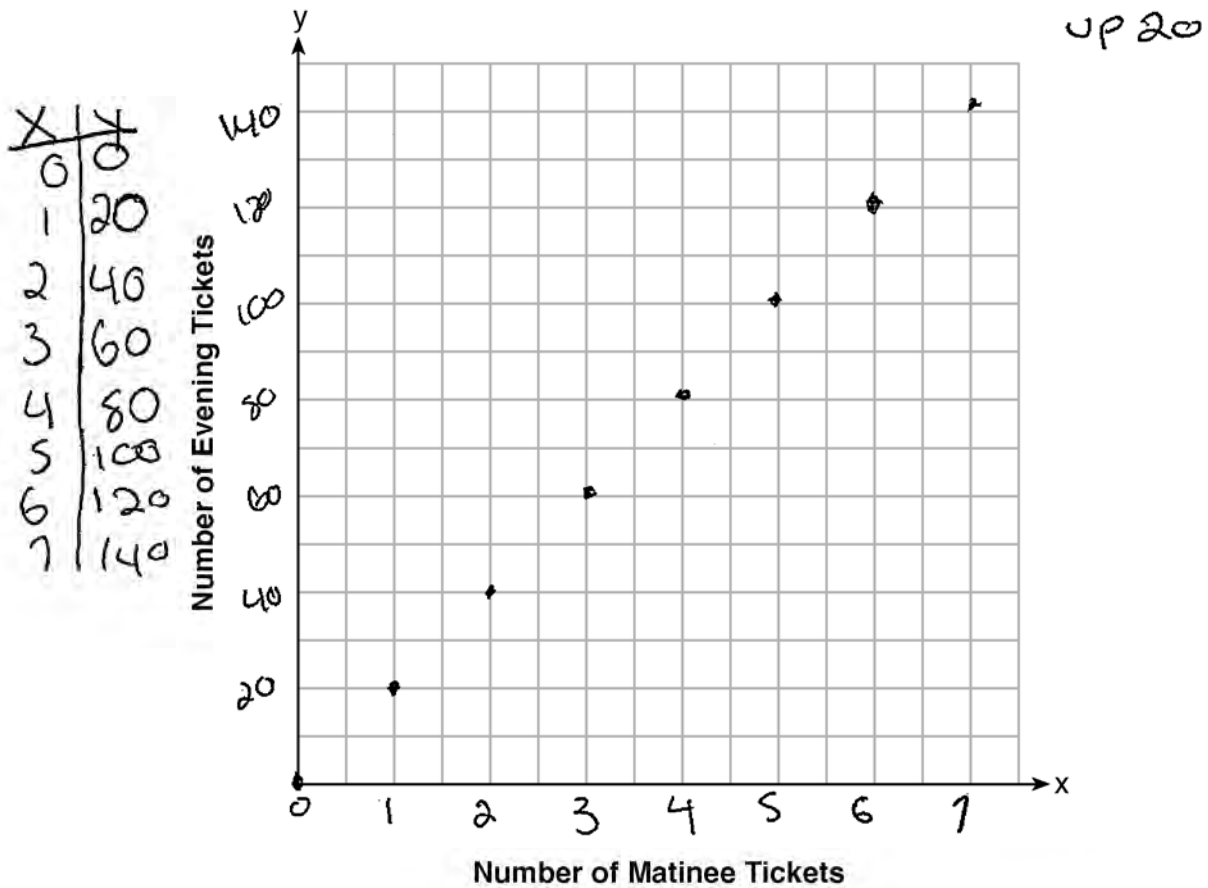
UP 20

X	Y
0	0
1	20
2	40
3	60
4	80
5	100
6	120
7	140

Number of Matinee Tickets

What is the maximum number of matinee tickets Myranda could purchase with her gift card? Explain your answer.

140

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

36 One spring day, Elroy noted the time of day and the temperature, in degrees Fahrenheit. His findings are stated below.

At 6 a.m., the temperature was 50°F. For the next 4 hours, the temperature rose 3° per hour.
The next 6 hours, it rose 2° per hour.
The temperature then stayed steady until 6 p.m.
For the next 2 hours, the temperature dropped 1° per hour.
The temperature then dropped steadily until the temperature was 56°F at midnight.

On the set of axes below, graph Elroy's data.
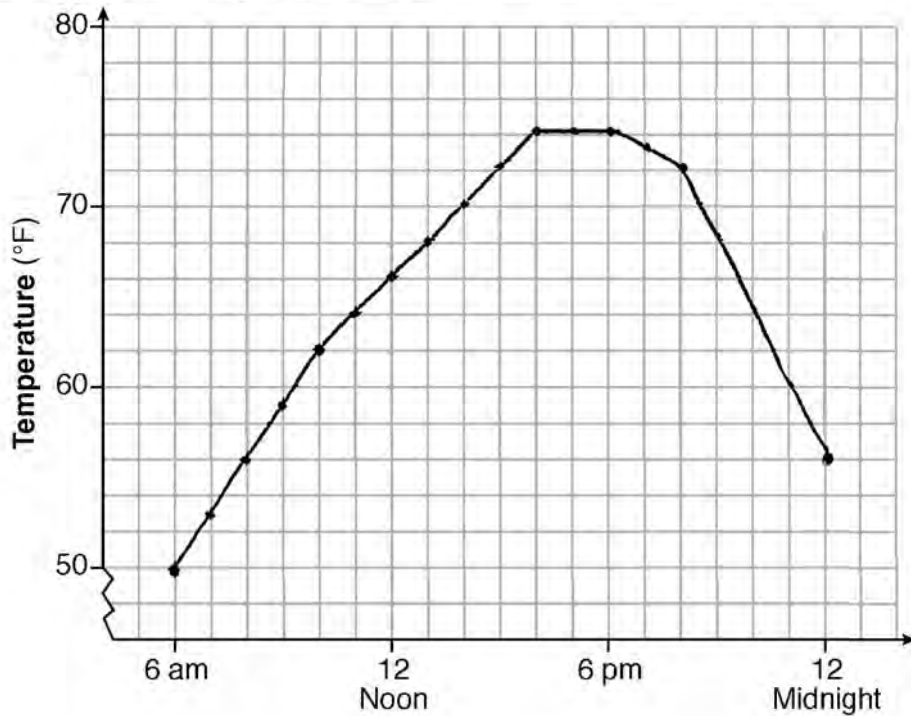
State the entire time interval for which the temperature was increasing.

$$\left(6\,am,\ 4\,pm\right)$$

Determine the average rate of change, in degrees per hour, from 6:00 p.m. to midnight.

$$\frac{74-56}{6-12}\qquad \frac{18}{-6}=-3\qquad -3°/hour$$

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

36 One spring day, Elroy noted the time of day and the temperature, in degrees Fahrenheit. His findings are stated below.

At 6 a.m., the temperature was 50°F. For the next 4 hours, the temperature rose 3° per hour. The next 6 hours, it rose 2° per hour.
The temperature then stayed steady until 6 p.m.
For the next 2 hours, the temperature dropped 1° per hour.
The temperature then dropped steadily until the temperature was 56°F at midnight.

On the set of axes below, graph Elroy's data.
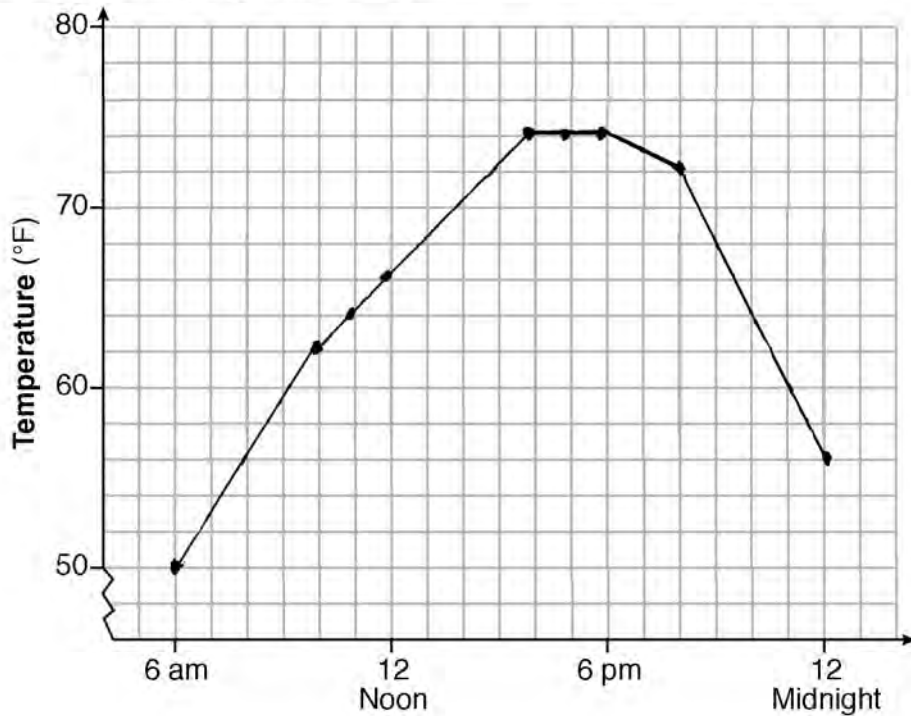
State the entire time interval for which the temperature was increasing.

$$\text{The temperature was increasing from } 6{:}00\,am - 6{:}00\,pm$$

Determine the average rate of change, in degrees per hour, from 6:00 p.m. to midnight.

$$\frac{74-56}{6-12} = \frac{18}{-6} = -3$$

The average rate of change for this period was −3°/hour.
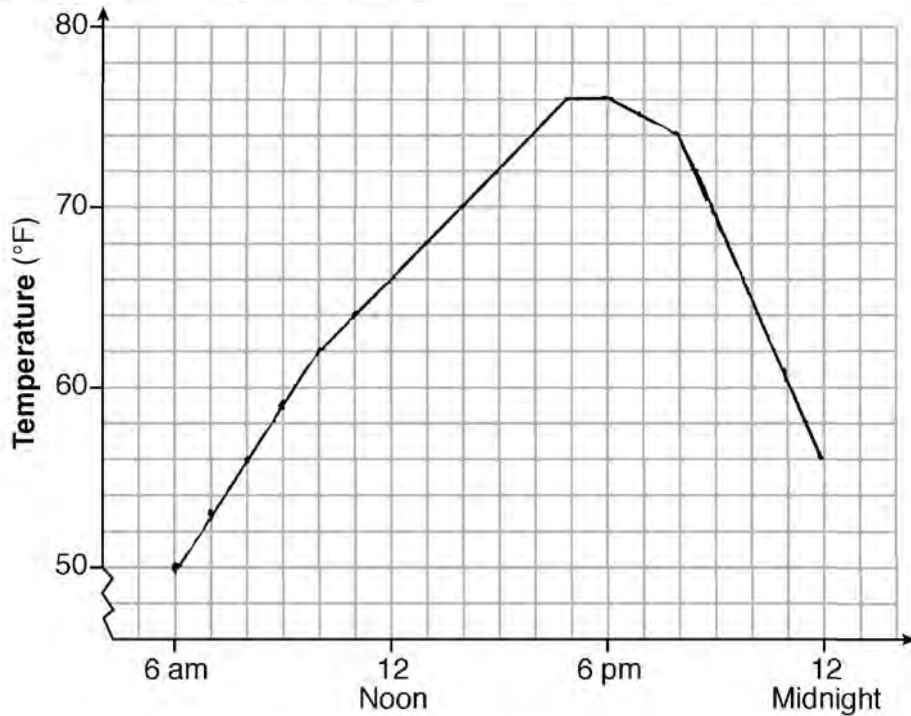
Score 3: The student stated an incorrect time interval.

36 One spring day, Elroy noted the time of day and the temperature, in degrees Fahrenheit. His findings are stated below.

At 6 a.m., the temperature was 50°F. For the next 4 hours, the temperature rose 3° per hour.
The next 6 hours, it rose 2° per hour.
The temperature then stayed steady until 6 p.m.
For the next 2 hours, the temperature dropped 1° per hour.
The temperature then dropped steadily until the temperature was 56°F at midnight.

On the set of axes below, graph Elroy's data.

State the entire time interval for which the temperature was increasing.

$6am \leq X \leq 4pm$

Determine the average rate of change, in degrees per hour, from 6:00 p.m. to midnight.

$4°F$

Score 2: The student graphed a rate of change of 2° per hour for 7 hours instead of 6, but stated a correct interval based on the information given in the problem.

36 One spring day, Elroy noted the time of day and the temperature, in degrees Fahrenheit. His findings are stated below.

At 6 a.m., the temperature was 50°F. For the next 4 hours, the temperature rose 3° per hour. The next 6 hours, it rose 2° per hour.
The temperature then stayed steady until 6 p.m.
For the next 2 hours, the temperature dropped 1° per hour.
The temperature then dropped steadily until the temperature was 56°F at midnight.

On the set of axes below, graph Elroy's data.
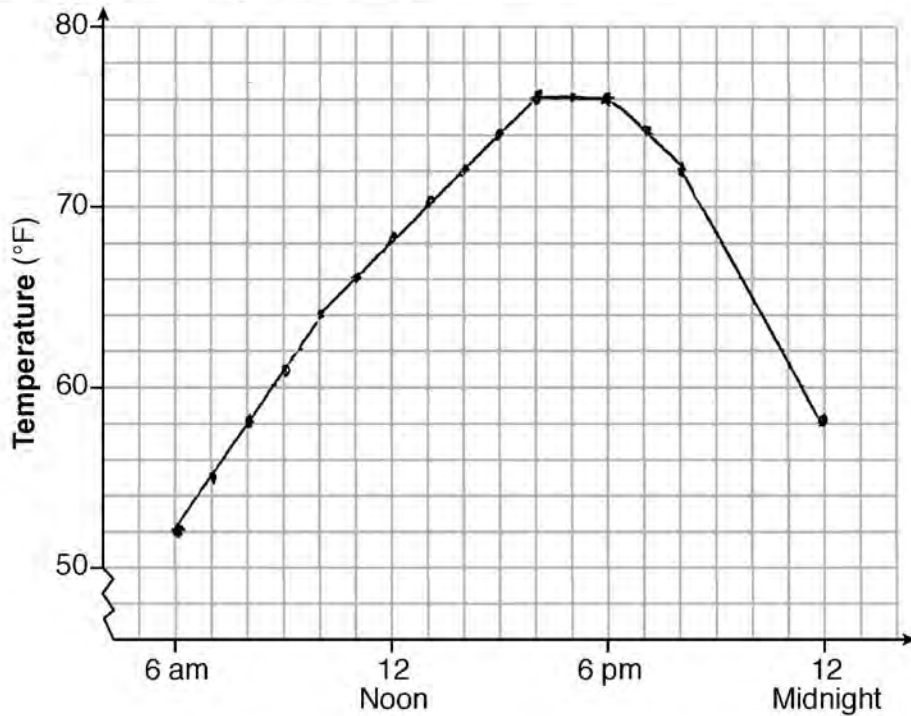
State the entire time interval for which the temperature was increasing.

6 am   to   3pm

Determine the average rate of change, in degrees per hour, from 6:00 p.m. to midnight.

76 − 58 = 18

18 ÷ 6 = ⁻3

average rate of change ≃ ⁻3
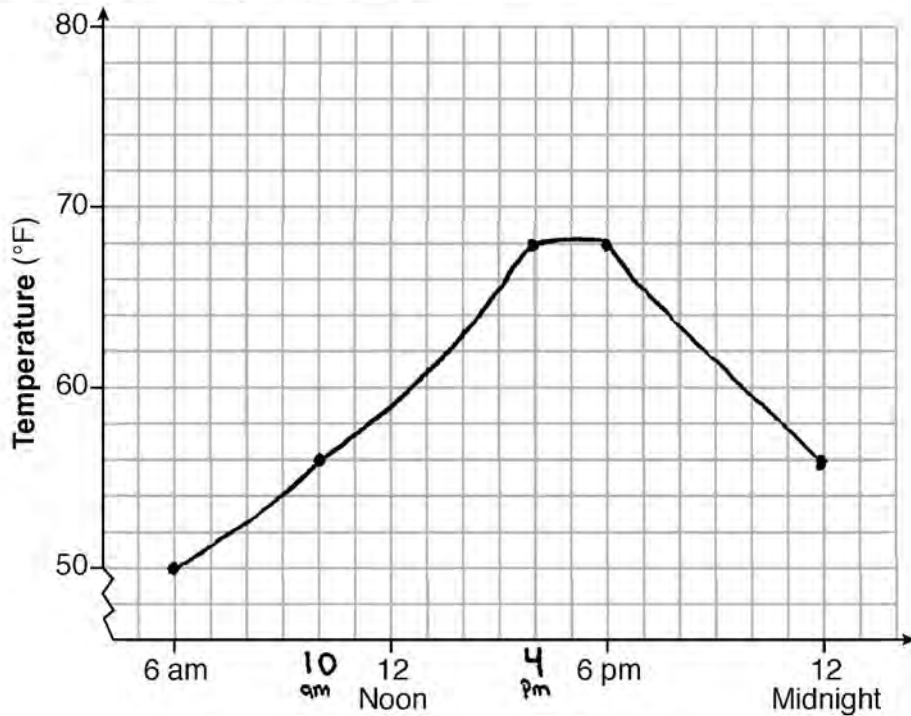
Score 1: The student made two graphing errors, but determined an appropriate rate of change.

36 One spring day, Elroy noted the time of day and the temperature, in degrees Fahrenheit. His findings are stated below.

At 6 a.m., the temperature was 50°F. For the next 4 hours, the temperature rose 3° per hour. The next 6 hours, it rose 2° per hour.
The temperature then stayed steady until 6 p.m.
For the next 2 hours, the temperature dropped 1° per hour.
The temperature then dropped steadily until the temperature was 56°F at midnight.

On the set of axes below, graph Elroy's data.

State the entire time interval for which the temperature was increasing.

Determine the average rate of change, in degrees per hour, from 6:00 p.m. to midnight.

It started to decrease from 6pm by 1° per hour until midnight

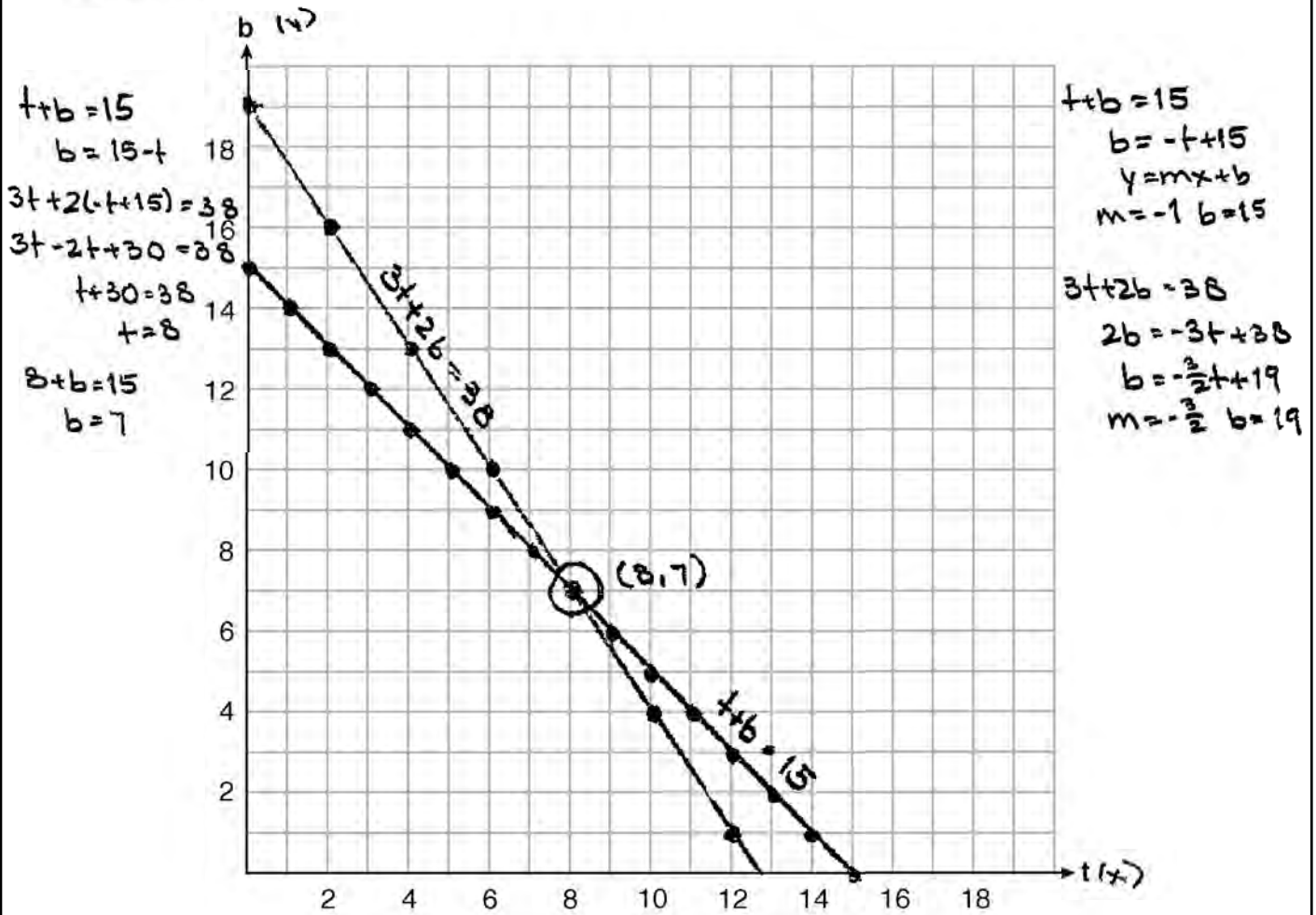**Score 0:** The student did not show enough correct work to receive any credit.

37 A recreation center ordered a total of 15 tricycles and bicycles from a sporting goods store. The number of wheels for all the tricycles and bicycles totaled 38.

Write a linear system of equations that models this scenario, where t represents the number of tricycles and b represents the number of bicycles ordered.

let: $t = $ # of tricycles
$b = $ # of bicycles

$t + b = 15$
$3t + 2b = 38$

On the set of axes below, graph this system of equations.

$t + b = 15$
$b = 15 - t$
$3t + 2(-t + 15) = 38$
$3t - 2t + 30 = 38$
$t + 30 = 38$
$t = 8$

$8 + b = 15$
$b = 7$

$t + b = 15$
$b = -t + 15$
$y = mx + b$
$m = -1 \quad b = 15$

$3t + 2b = 38$
$2b = -3t + 38$
$b = -\frac{3}{2}t + 19$
$m = -\frac{3}{2} \quad b = 19$

$(8, 7)$

$3t + 2b = 38$

$t + b = 15$

Question 37 is continued on the next page.

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

Question 37 continued

Based on your graph of this scenario, could the recreation center have ordered 10 tricycles? Explain your reasoning.
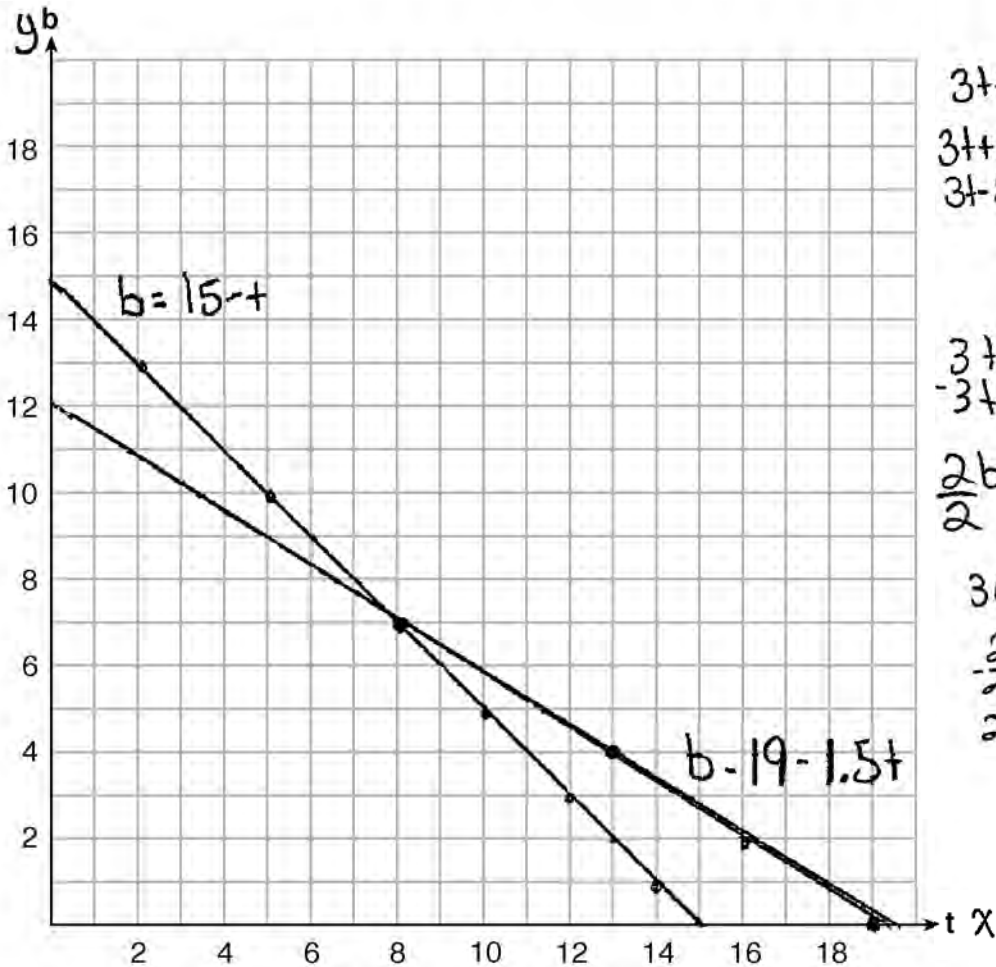
No; the graphs do not intersect where t=10.

37 A recreation center ordered a total of 15 tricycles and bicycles from a sporting goods store. The number of wheels for all the tricycles and bicycles totaled 38.

Write a linear system of equations that models this scenario, where t represents the number of tricycles and b represents the number of bicycles ordered.

$$t+b=15$$
$$3t+2b=38$$

On the set of axes below, graph this system of equations.

$3t+2b=38$
$3t+2(t+15)=38$
$3t-2t+30=38$
$-30-30$
$t=8$

$3t+2b=38$
$-3t-3t$
$\dfrac{2b}{2}=\dfrac{38-3t}{2}$

$3(8)+2b=38$
$24+2b=38$
$-24-24$
$2b=14$
$b=7$

b = 15 - t

b - 19 - 1.5t

Question 37 is continued on the next page.

Score 5: The student graphed $3t + 2b = 38$ incorrectly.

Question 37 continued

Based on your graph of this scenario, could the recreation center have ordered 10 tricycles? Explain your reasoning.
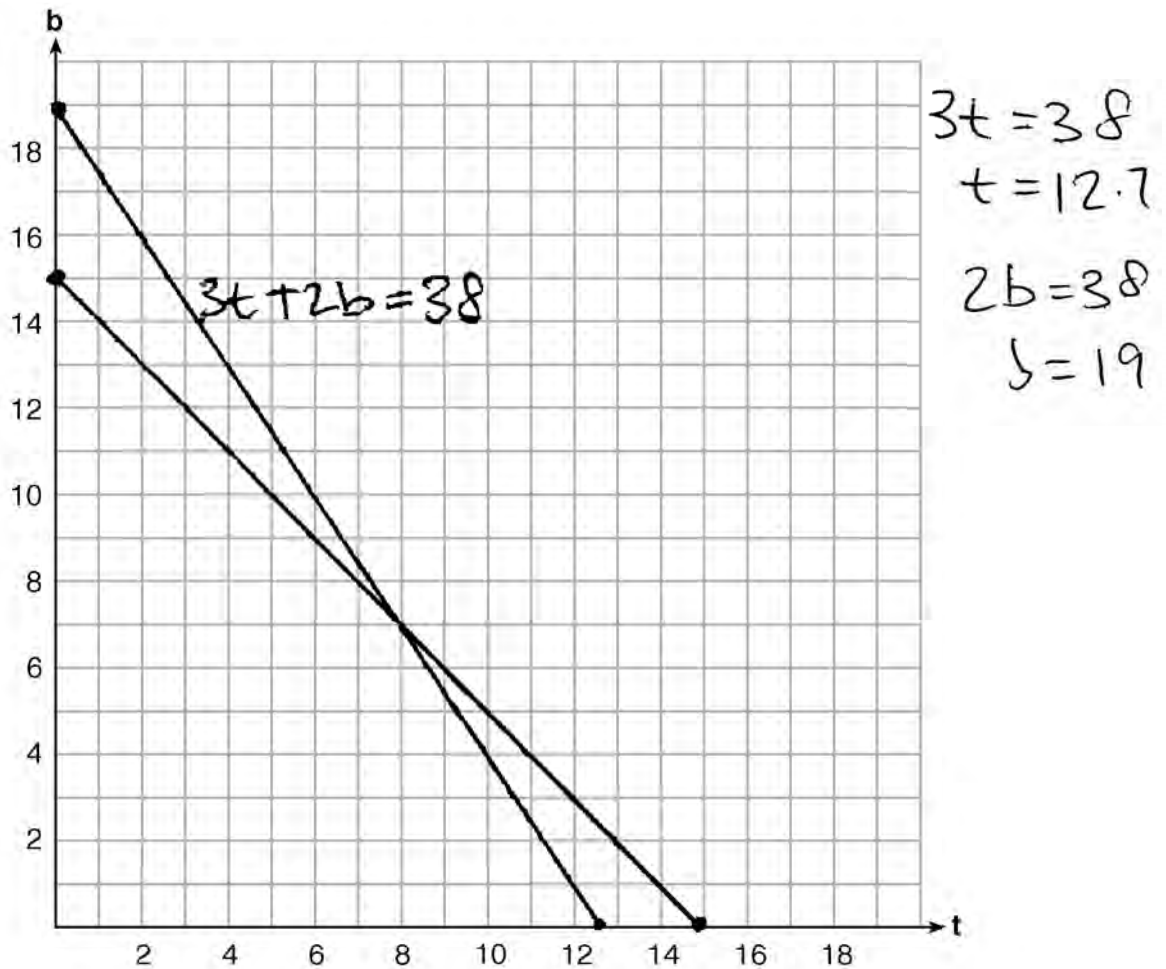
No, because the lines don't intersect at (10,5)

37 A recreation center ordered a total of 15 tricycles and bicycles from a sporting goods store. The number of wheels for all the tricycles and bicycles totaled 38.

Write a linear system of equations that models this scenario, where t represents the number of tricycles and b represents the number of bicycles ordered.

$$t + b = 15$$
$$3t + 2b = 38$$

On the set of axes below, graph this system of equations.

$$3t = 38$$
$$t = 12.7$$

$$2b = 38$$
$$b = 19$$

Question 37 is continued on the next page.

Score 4: The student wrote a correct system and graphed it correctly.

Question 37 continued

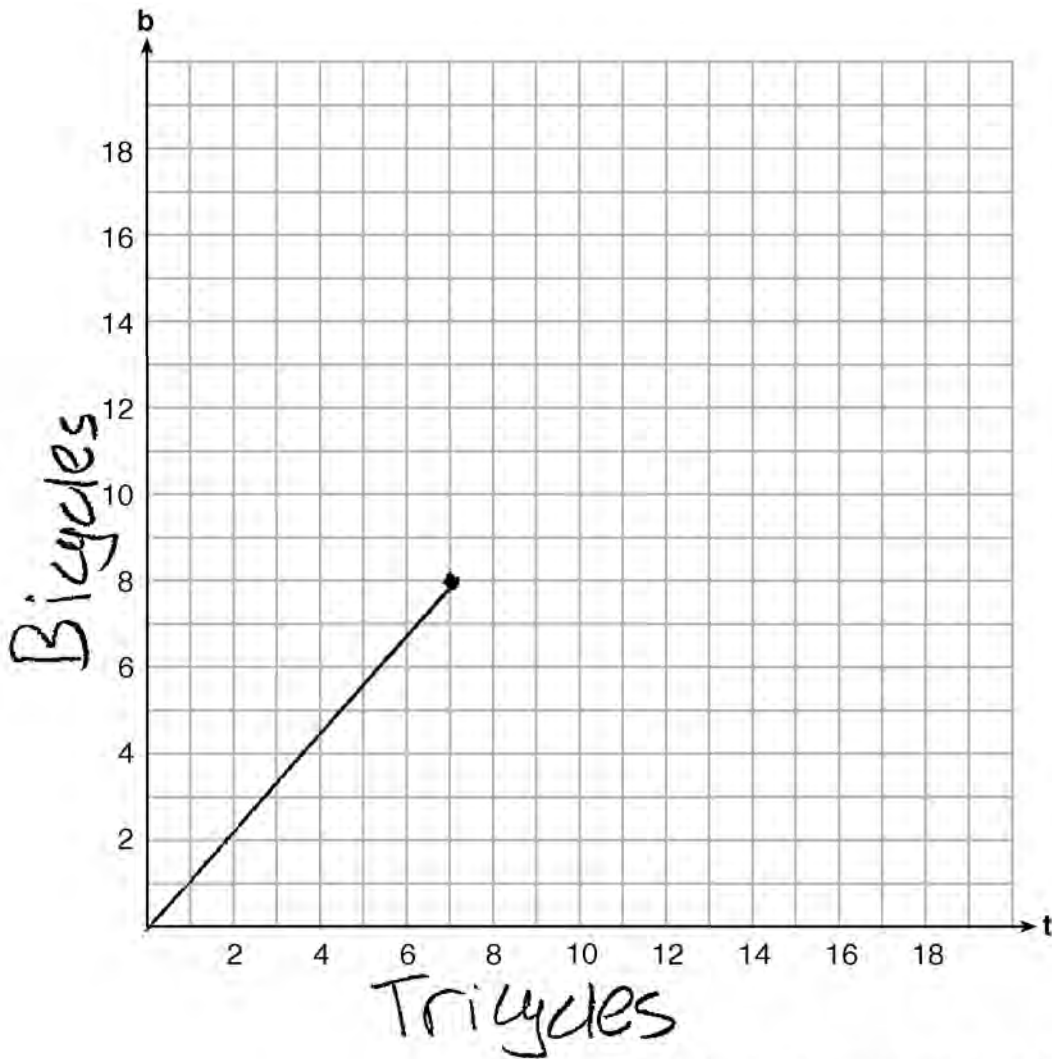Based on your graph of this scenario, could the recreation center have ordered 10 tricycles? Explain your reasoning.

37 A recreation center ordered a total of 15 tricycles and bicycles from a sporting goods store. The number of wheels for all the tricycles and bicycles totaled 38.

Write a linear system of equations that models this scenario, where t represents the number of tricycles and b represents the number of bicycles ordered.

$$3t + 2b = 38$$
$$t + b = 15$$
$$-2t - 2b = -30$$

$$t = 8$$
$$b = 7$$

On the set of axes below, graph this system of equations.

Question 37 is continued on the next page.

Score 3: The student wrote a correct system of equations and an explanation not based on the graph.

Question 37 continued

Based on your graph of this scenario, could the recreation center have ordered 10 tricycles? Explain your reasoning.

If they ordered 10 tricycles than they would have ordered, 5 bicycles. 10 tricycles would have 30 wheels and 5 bicycles would have 10 wheels. There would be a total of 40 wheels. Therefore they cannot order 10 tricycles.

37 A recreation center ordered a total of 15 tricycles and bicycles from a sporting goods store. The number of wheels for all the tricycles and bicycles totaled 38.

Write a linear system of equations that models this scenario, where t represents the number of tricycles and b represents the number of bicycles ordered.

$$3t + 2b = 38$$

On the set of axes below, graph this system of equations.

bicycles & tricycles
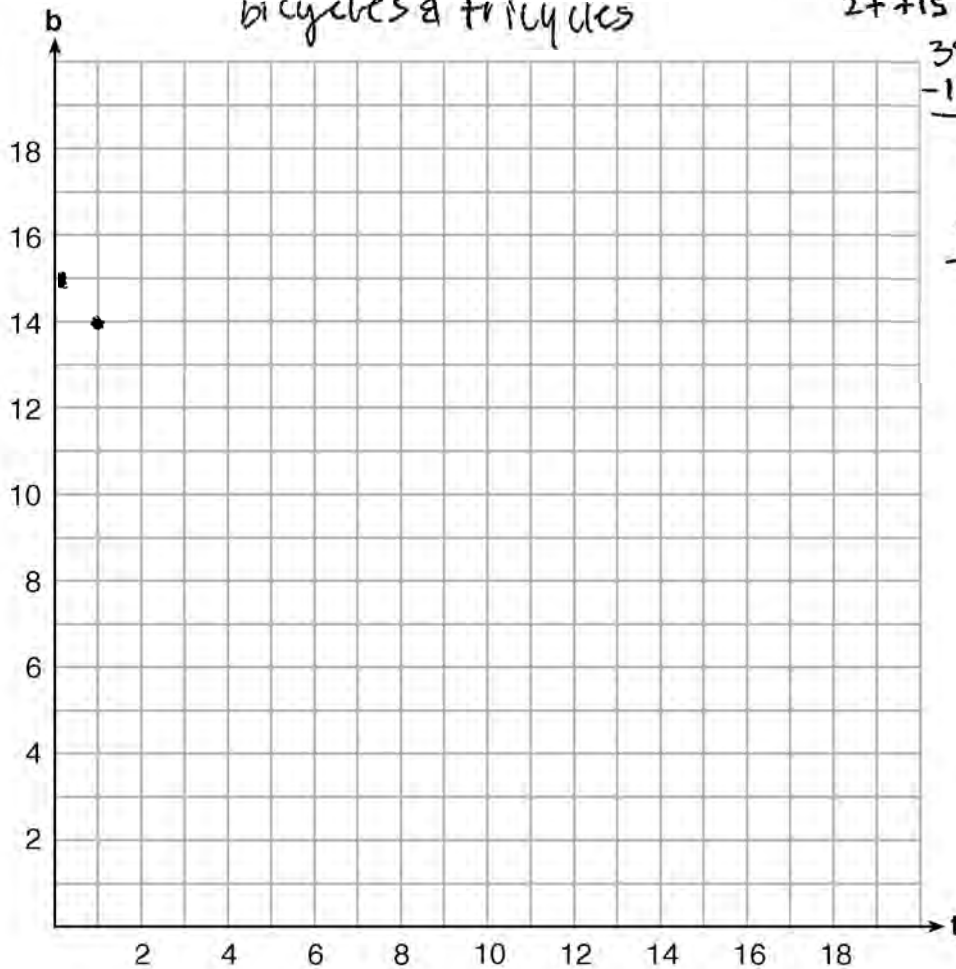
$t + b = 15$

$b = 15 - t$

$3t + (15 - t)$

$2t + 15 = 38$

$38 = 2t + 15$

$-15 \qquad -15$

$23 = 2t$

$\dfrac{3t}{3} = \dfrac{38 - 2b}{3}$

$t =$

b

```
18
16
14
12
10
8
6
4
2
        2   4   6   8   10  12  14  16  18      t
```

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

Question 37 continued

Based on your graph of this scenario, could the recreation center have ordered 10 tricycles? Explain your reasoning.

30 + 10

No,

37 A recreation center ordered a total of 15 tricycles and bicycles from a sporting goods store. The number of wheels for all the tricycles and bicycles totaled 38.

Write a linear system of equations that models this scenario, where t represents the number of tricycles and b represents the number of bicycles ordered.

$$f(x) = 15(x) = 38$$

On the set of axes below, graph this system of equations.

Question 37 is continued on the next page.

Score 1: The student wrote an explanation not based on a graph.

Question 37 continued

Based on your graph of this scenario, could the recreation center have ordered 10 tricycles? Explain your reasoning.
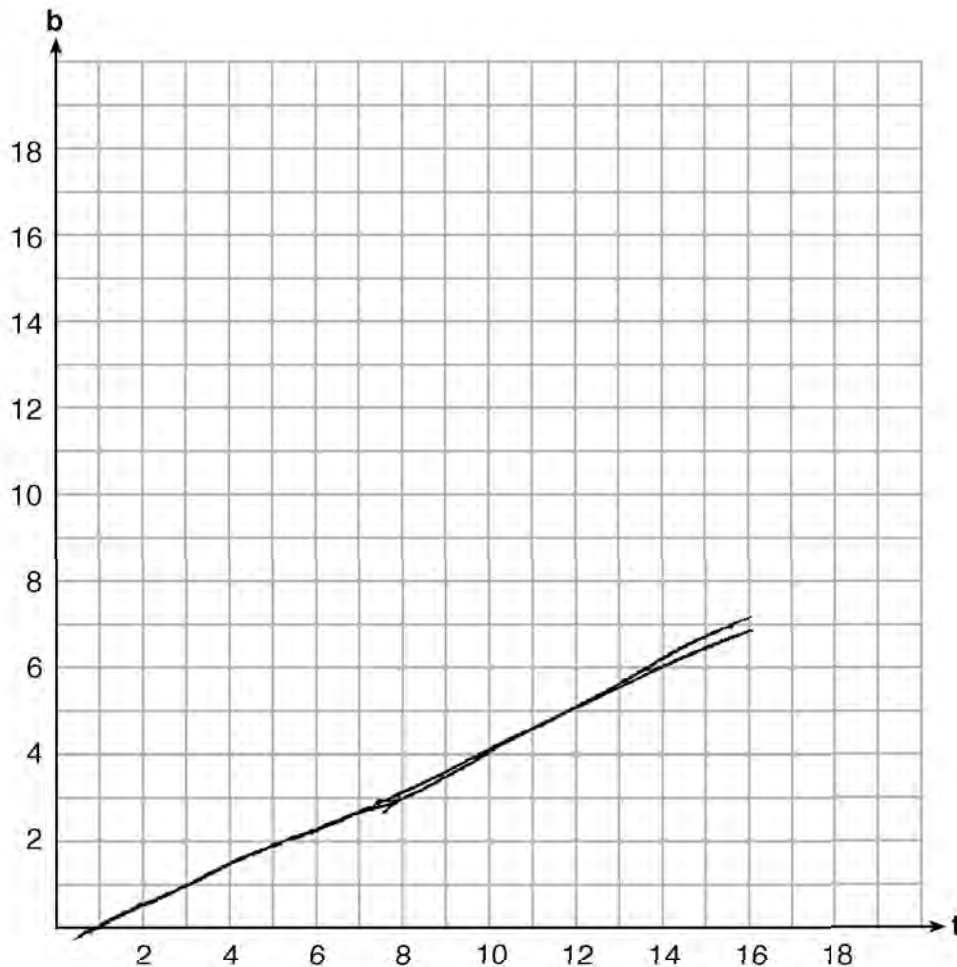
No, because if the would've ordered 10 tricycles, they would have to buy 5 bicycles, the end result would be 40 wheels in total.

37 A recreation center ordered a total of 15 tricycles and bicycles from a sporting goods store. The number of wheels for all the tricycles and bicycles totaled 38.

Write a linear system of equations that models this scenario, where t represents the number of tricycles and b represents the number of bicycles ordered.

$$3t + 2b \le 38$$

On the set of axes below, graph this system of equations.
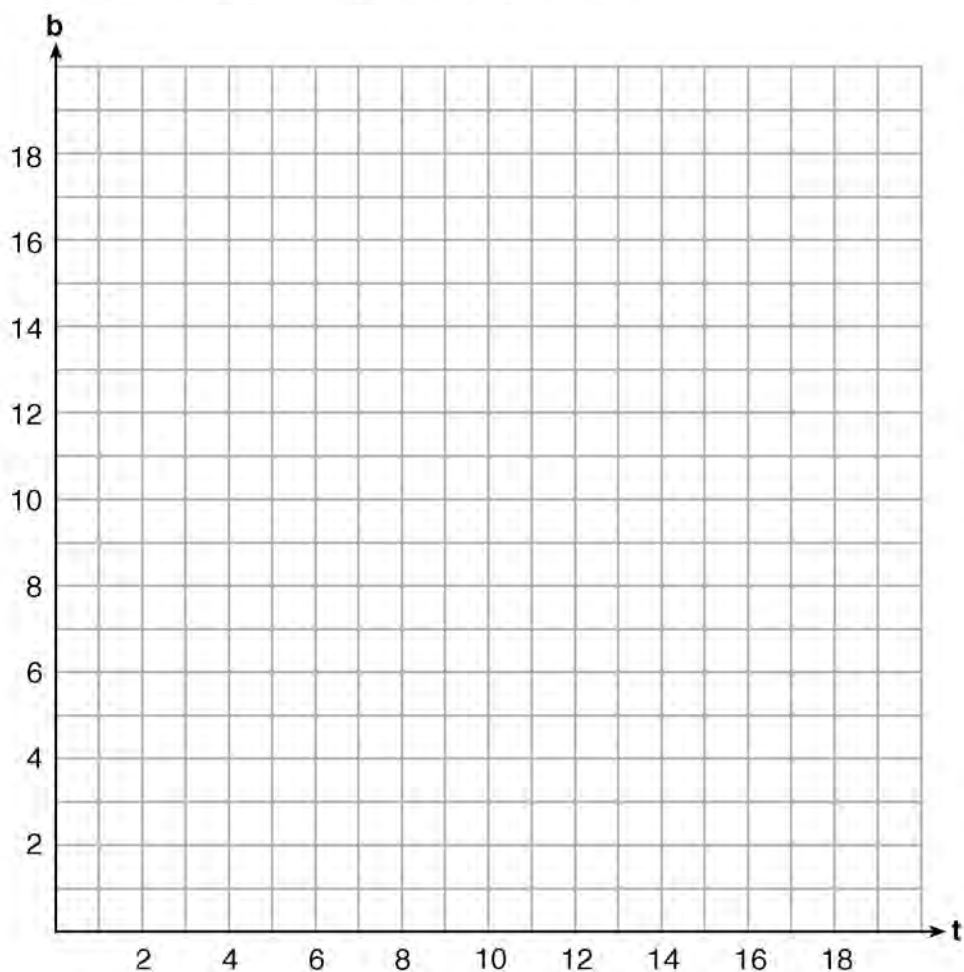
Score 0: The student showed no correct work.

Question 37 continued

Based on your graph of this scenario, could the recreation center have ordered 10 tricycles? Explain your reasoning.

Regents Examination in Algebra I – January 2019

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

(Use for the January 2019 exam only.)

Raw Score	Scale Score	Performance Level	Raw Score	Scale Score	Performance Level	Raw Score	Scale Score	Performance Level
86	100	5	57	81	4	28	66	3
85	99	5	56	81	4	27	65	3
84	98	5	55	81	4	26	64	2
83	97	5	54	80	4	25	63	2
82	96	5	53	80	4	24	62	2
81	95	5	52	80	4	23	60	2
80	94	5	51	79	3	22	59	2
79	93	5	50	79	3	21	57	2
78	92	5	49	79	3	20	56	2
77	91	5	48	79	3	19	55	2
76	90	5	47	78	3	18	52	1
75	89	5	46	78	3	17	51	1
74	88	5	45	78	3	16	49	1
73	88	5	44	77	3	15	47	1
72	87	5	43	77	3	14	45	1
71	86	5	42	76	3	13	42	1
70	86	5	41	76	3	12	40	1
69	86	5	40	75	3	11	38	1
68	85	5	39	75	3	10	35	1
67	84	4	38	74	3	9	32	1
66	84	4	37	74	3	8	30	1
65	84	4	36	73	3	7	27	1
64	83	4	35	72	3	6	23	1
63	83	4	34	72	3	5	20	1
62	83	4	33	71	3	4	17	1
61	82	4	32	70	3	3	13	1
60	82	4	31	69	3	2	9	1
59	82	4	30	68	3	1	5	1
58	81	4	29	67	3	0	0	1

To determine the student's final examination score (scale score), find the student's total test raw score in the column labeled "Raw Score" and then locate the scale score that corresponds to that raw score. The scale score is the student's final examination score. Enter this score in the space labeled "Scale Score" on the student's answer sheet.

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

Because scale scores corresponding to raw scores in the conversion chart change from one administration to another, it is crucial that for each administration the conversion chart provided for that administration be used to determine the student's final score. The chart above is usable only for this administration of the Regents Examination in Algebra I.