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

# ALGEBRA I

## v202

**Student Name** _____

**School Name** _____

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

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

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

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

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

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

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

**Notice …**

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

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

## Part I

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

**Use this space for computations.**

**1** A high school club is researching a tour package offered by the Island Kayak Company. The company charges \$35 per person and \$245 for the tour guide. Which function represents the total cost, $C(x)$, of this kayak tour package for $x$ club members?

(1) $C(x) = 35x$

(2) $C(x) = 35x + 245$

(3) $C(x) = 35(x + 245)$

(4) $C(x) = 35 + (x + 245)$

**2** The expression $3(x + 4) - (2x + 7)$ is equivalent to

(1) $x + 5$

(2) $x - 10$

(3) $x - 3$

(4) $x + 11$

**3** A function is defined as $K(x) = 2x^2 - 5x + 3$. The value of $K(-3)$ is

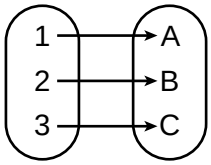
(1) 54

(2) 36

(3) 0

(4) $-18$

**4** Which relation is *not* a function?

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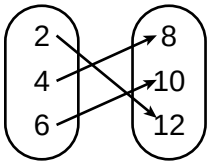


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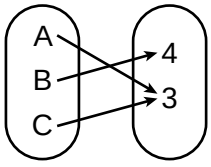


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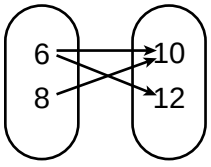



(4)

**Use this space for computations.**

**5** The value of Tony's investment was \$1140 on January 1st. On this date three years later, his investment was worth \$1824. The average rate of change for this investment was \$19 per

(1) day
(2) month
(3) quarter
(4) year

**6** The solution to $3(x - 8) + 4x = 8x + 4$ is

(1) 12
(2) 28
(3) $-12$
(4) $-28$

**7** An ice cream shop sells ice cream cones, $c$, and milkshakes, $m$. Each ice cream cone costs \$1.50 and each milkshake costs \$2.00. Donna has \$19.00 to spend on ice cream cones and milkshakes. If she must buy 5 ice cream cones, which inequality could be used to determine the maximum number of milkshakes she can buy?

(1) $1.50(5) + 2.00m \geq 19.00$
(2) $1.50(5) + 2.00m \leq 19.00$
(3) $1.50c + 2.00(5) \geq 19.00$
(4) $1.50c + 2.00(5) \leq 19.00$

**8** When written in standard form, the product of $(3 + x)$ and $(2x - 5)$ is

(1) $3x - 2$
(2) $2x^2 + x - 15$
(3) $2x^2 - 11x - 15$
(4) $6x - 15 + 2x^2 - 5x$

**9** If $x = 2$, $y = 3\sqrt{2}$, and $w = 2\sqrt{8}$, which expression results in a rational number?

(1) $x + y$
(2) $y - w$
(3) $(w)(y)$
(4) $y \div x$

**10** Which product is equivalent to $4x^2 - 3x - 27$?

(1) $(2x + 9)(2x - 3)$
(2) $(2x - 9)(2x + 3)$
(3) $(4x + 9)(x - 3)$
(4) $(4x - 9)(x + 3)$

**Use this space for computations.**

**11** Given: $f(x) = \frac{2}{3}x - 4$ and $g(x) = \frac{1}{4}x + 1$

Four statements about this system are written below.

I. $f(4) = g(4)$

II. When $x = 12$, $f(x) = g(x)$.

III. The graphs of $f(x)$ and $g(x)$ intersect at (12,4).

IV. The graphs of $f(x)$ and $g(x)$ intersect at (4,12).

Which statement(s) are true?

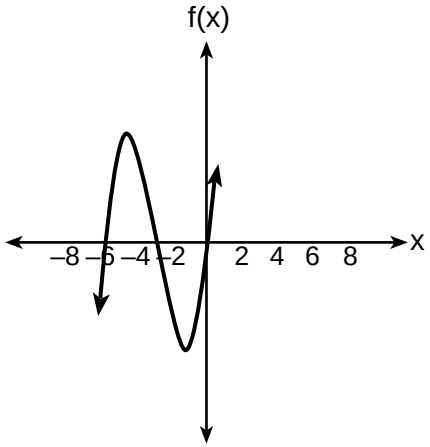
(1) II, only

(2) IV, only

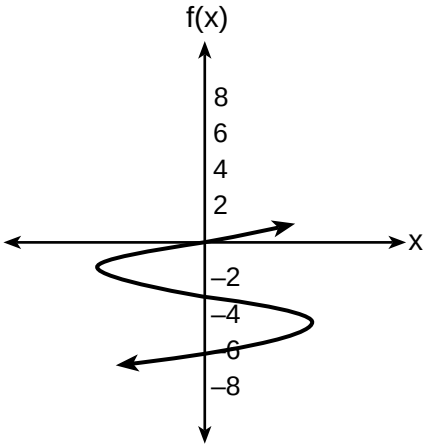
(3) I and IV

(4) II and III

**12** Which sketch represents the polynomial function $f(x) = x(x + 6)(x + 3)$?




(1)

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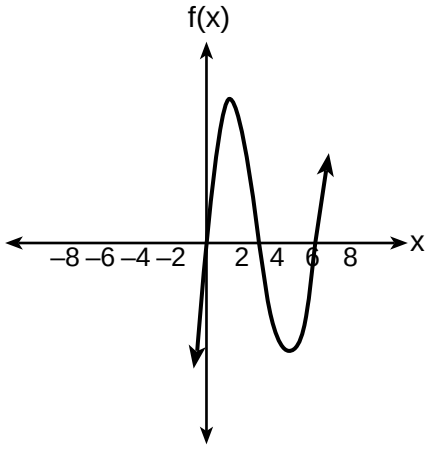


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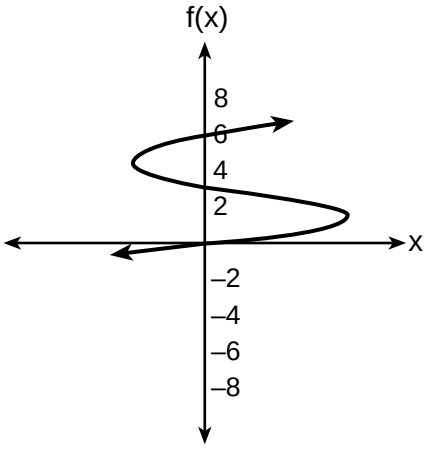



(4)

**Use this space for computations.**

**13** If the parent function of $f(x)$ is $p(x) = x^2$, then the graph of the function $f(x) = (x - k)^2 + 5$, where $k > 0$, would be a shift of

(1) $k$ units to the left and a move of 5 units up

(2) $k$ units to the left and a move of 5 units down

(3) $k$ units to the right and a move of 5 units up

(4) $k$ units to the right and a move of 5 units down

**14** Which expression is equivalent to $(-4x^2)^3$?

(1) $-12x^6$

(2) $-12x^5$

(3) $-64x^6$

(4) $-64x^5$

**15** Which function has the *smallest* $y$-intercept?

$g(x) = 2x - 6$

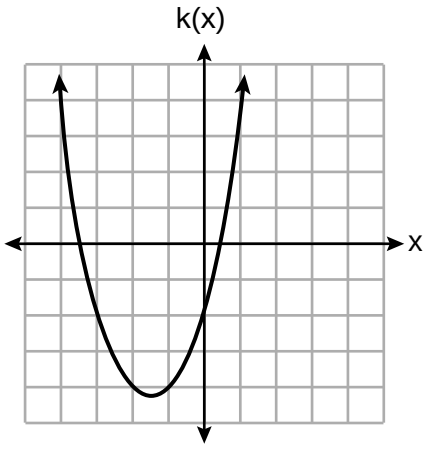
(1)

$f(x) = \sqrt{x} - 2$

(3)

| x | h(x) |
|---|---|
| –2 | $\frac{1}{4}$ |
| –1 | $\frac{1}{2}$ |
| 0 | 1 |
| 1 | 2 |
| 2 | 4 |

(2)




(4)

**16** Which domain would be the most appropriate to use for a function that compares the number of emails sent ($x$) to the amount of data used for a cell phone plan ($y$)?

(1) integers

(2) whole numbers

(3) rational numbers

(4) irrational numbers

**Use this space for computations.**

**17** Eric deposits \$500 in a bank account that pays 3.5% interest, compounded yearly. Which type of function should he use to determine how much money he will have in the account at the end of 10 years?

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

**18** Given: the sequence 4, 7, 10, 13,...

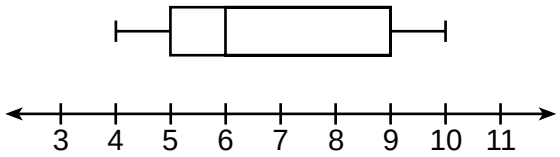
When using the arithmetic sequence formula $a_n = a_1 + (n - 1)d$ to determine the 10th term, which variable would be replaced with the number 3?

(1) $a_1$
(2) $n$
(3) $a_n$
(4) $d$

**19** Below are two representations of data.

A: 2, 5, 5, 6, 6, 6, 7, 8, 9

B:




Which statement about $A$ and $B$ is true?

(1) median of $A >$ median of $B$
(2) range of $A <$ range of $B$
(3) upper quartile of $A <$ upper quartile of $B$
(4) lower quartile of $A >$ lower quartile of $B$

**20** Which system has the same solution as the system below?

$$x + 3y = 10$$
$$-2x - 2y = 4$$

(1) $-x + y = 6$
$2x + 6y = 20$

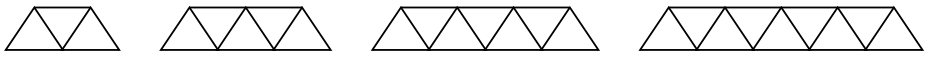
(2) $-x + y = 14$
$2x + 6y = 20$

(3) $x + y = 6$
$2x + 6y = 20$

(4) $x + y = 14$
$2x + 6y = 20$

**Use this space for computations.**

**21** Given the pattern below, which recursive formula represents the number of triangles in this sequence?



(1) $y = 2x + 3$

(2) $y = 3x + 2$

(3) $a_1 = 2, \ a_n = a_{n-1} + 3$

(4) $a_1 = 3, \ a_n = a_{n-1} + 2$

**22** Students were asked to write an expression which had a leading coefficient of 3 and a constant term of −4. Which response is correct?

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

(2) $7x^3 - 3x^5 - 4$

(3) $4 - 7x + 3x^3$

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

**23** Sarah travels on her bicycle at a speed of 22.7 miles per hour. What is Sarah's approximate speed, in kilometers per minute?

(1) 0.2

(2) 0.6

(3) 36.5

(4) 36.6

**24** Which ordered pair does *not* fall on the line formed by the other three?

(1) (16,18)

(2) (12,12)

(3) (9,10)

(4) (3,6)

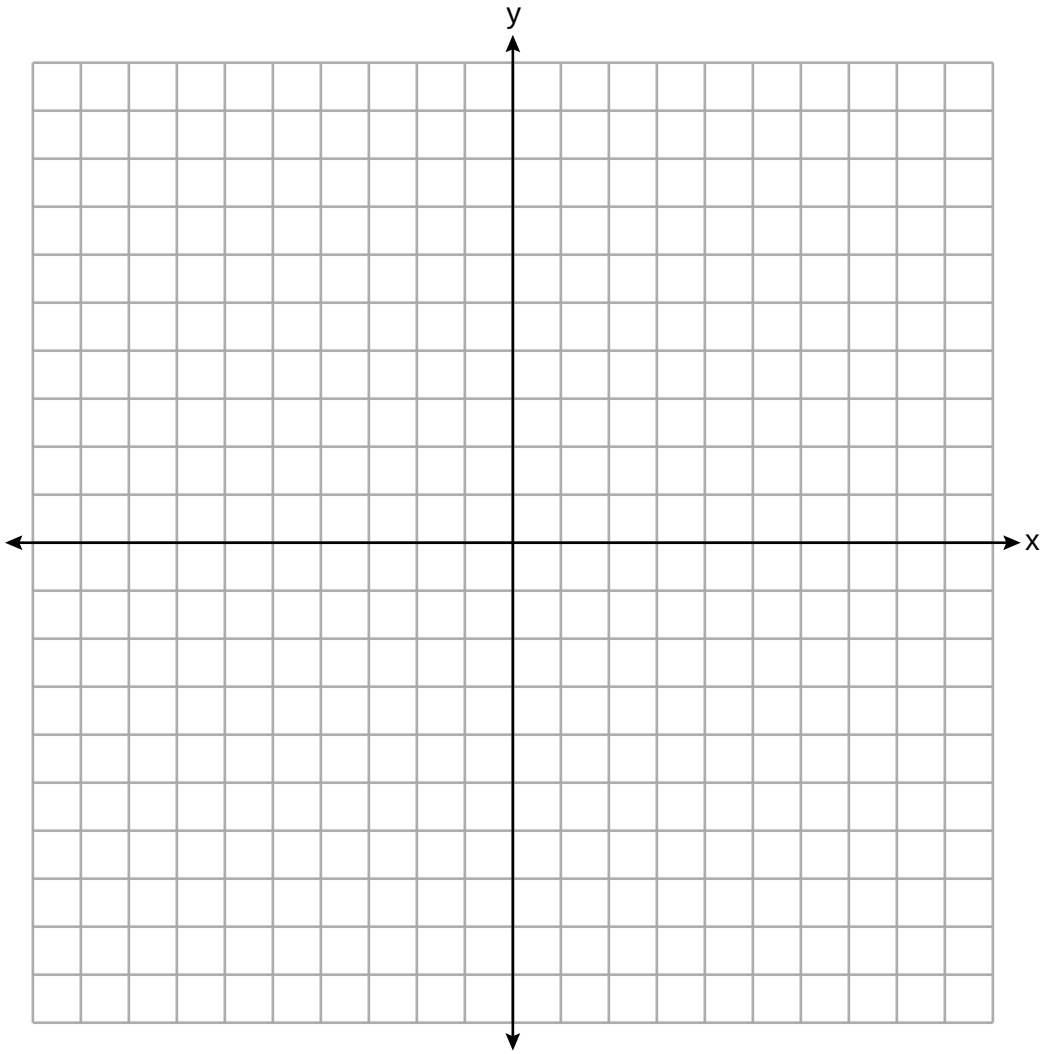
## Part II

**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 $y$:

$$4(y - 3) \leq 4(2y + 1)$$

**26** Graph the function $f(x) = \left|\frac{1}{2}x + 3\right|$ over the interval $-8 \leq x \leq 0$.



**27** The table below shows the height in feet, $h(t)$, of a hot-air balloon and the number of minutes, $t$, the balloon is in the air.

| **Time** (min) | 2 | 5 | 7 | 10 | 12 |
|---|---|---|---|---|---|
| **Height** (ft) | 64 | 168 | 222 | 318 | 369 |

The function $h(t) = 30.5t + 8.7$ can be used to model this data table.

Explain the meaning of the slope in the context of the problem.

Explain the meaning of the $y$-intercept in the context of the problem.

**28** Factor $x^4 - 16$ completely.

**29** Mike knows that (3,6.5) and (4,17.55) are points on the graph of an exponential function, $g(x)$, and he wants to find another point on the graph of this function.

First, he subtracts 6.5 from 17.55 to get 11.05.

Next, he adds 11.05 and 17.55 to get 28.6.

He states that (5,28.6) is a point on $g(x)$.

Is he correct? Explain your reasoning.

**30** Use the method of completing the square to determine the vertex of $f(x) = x^2 - 14x - 15$. State the coordinates of the vertex.

**31** The temperature inside a cooling unit is measured in degrees Celsius, $C$. Josh wants to find out how cold it is in degrees Fahrenheit, $F$.

Solve the formula $C = \frac{5}{9}(F - 32)$ for $F$ so that Josh can convert Celsius to Fahrenheit.

**32** Solve $4w^2 + 12w - 44 = 0$ algebraically for $w$, to the *nearest hundredth*.

## Part III

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

**33** Joey recorded his heart rate, in beats per minute (bpm), after doing different numbers of jumping jacks. His results are shown in the table below.

| **Number of Jumping Jacks** **x** | **Heart Rate** (bpm) **y** |
|---|---|
| 0 | 68 |
| 10 | 84 |
| 15 | 104 |
| 20 | 100 |
| 30 | 120 |

State the linear regression equation that estimates the heart rate per number of jumping jacks.

State the correlation coefficient of the linear regression equation, rounded to the *nearest hundredth*.

Explain what the correlation coefficient suggests in the context of this problem.

**34** Hannah went to the school store to buy supplies and spent $16. She bought four more pencils than pens and two fewer erasers than pens. Pens cost $1.25 each, pencils cost $0.55 each, and erasers cost $0.75 each.

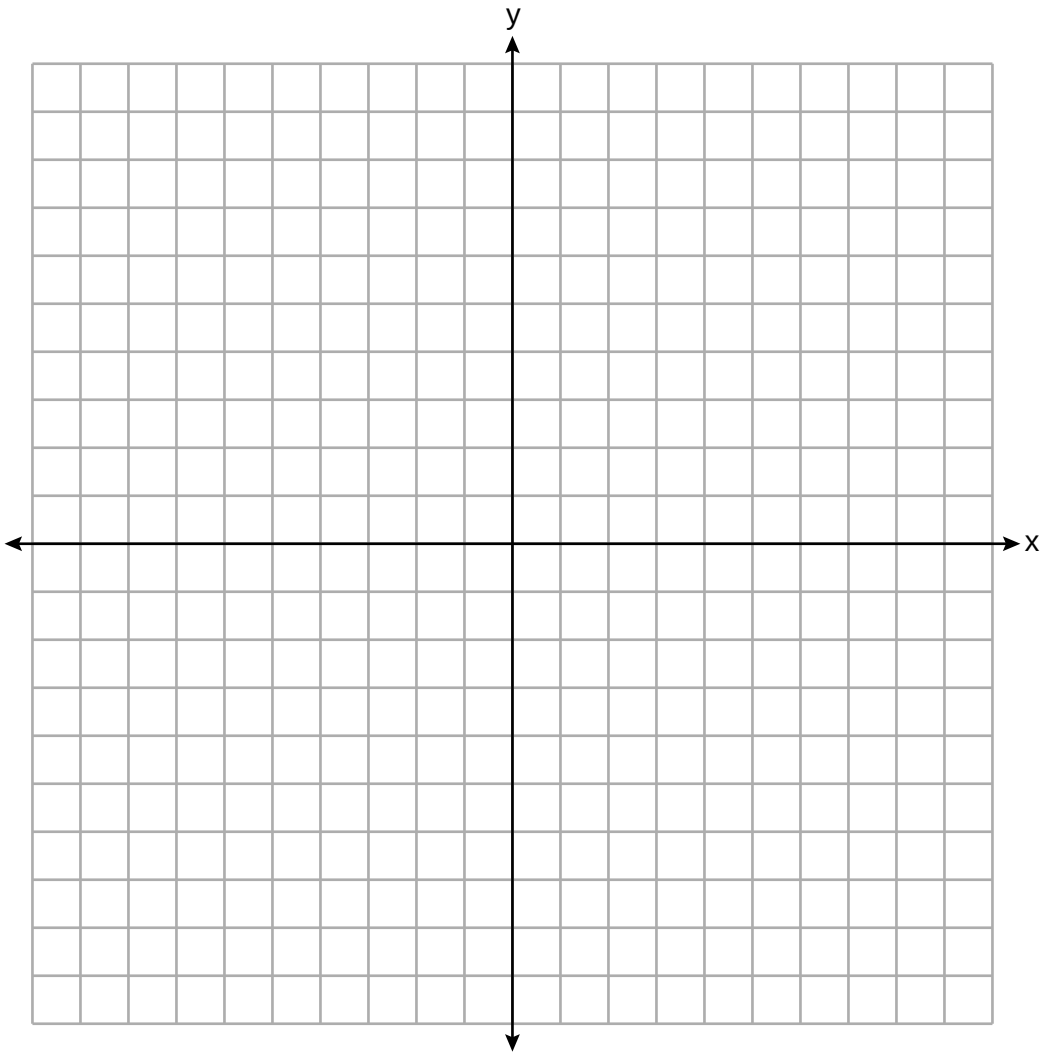
If $x$ represents the number of pens Hannah bought, write an equation in terms of $x$ that can be used to find how many of each item she bought.

Use your equation to determine algebraically how many pens Hannah bought.

**35** Graph the system of inequalities on the set of axes below:

$$y \leq -\frac{3}{4}x + 5$$

$$3x - 2y > 4$$




Is (6,3) a solution to the system of inequalities? Explain your answer.

**36** A ball is projected up into the air from the surface of a platform to the ground below. The height of the ball above the ground, in feet, is modeled by the function $f(t) = -16t^2 + 96t + 112$, where $t$ is the time, in seconds, after the ball is projected.

State the height of the platform, in feet.

State the coordinates of the vertex. Explain what it means in the context of the problem.

State the entire interval over which the ball's height is *decreasing*.

## 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** At a local garden shop, the price of plants includes sales tax.

The cost of 4 large plants and 8 medium plants is \$40. The cost of 5 large plants and 2 medium plants is \$28.

If $l$ is the cost of a large plant and $m$ is the cost of a medium plant, write a system of equations that models this situation.

Could the cost of one large plant be \$5.50 and the cost of one medium plant be \$2.25? Justify your answer.

Determine algebraically both the cost of a large plant and the cost of a medium plant.

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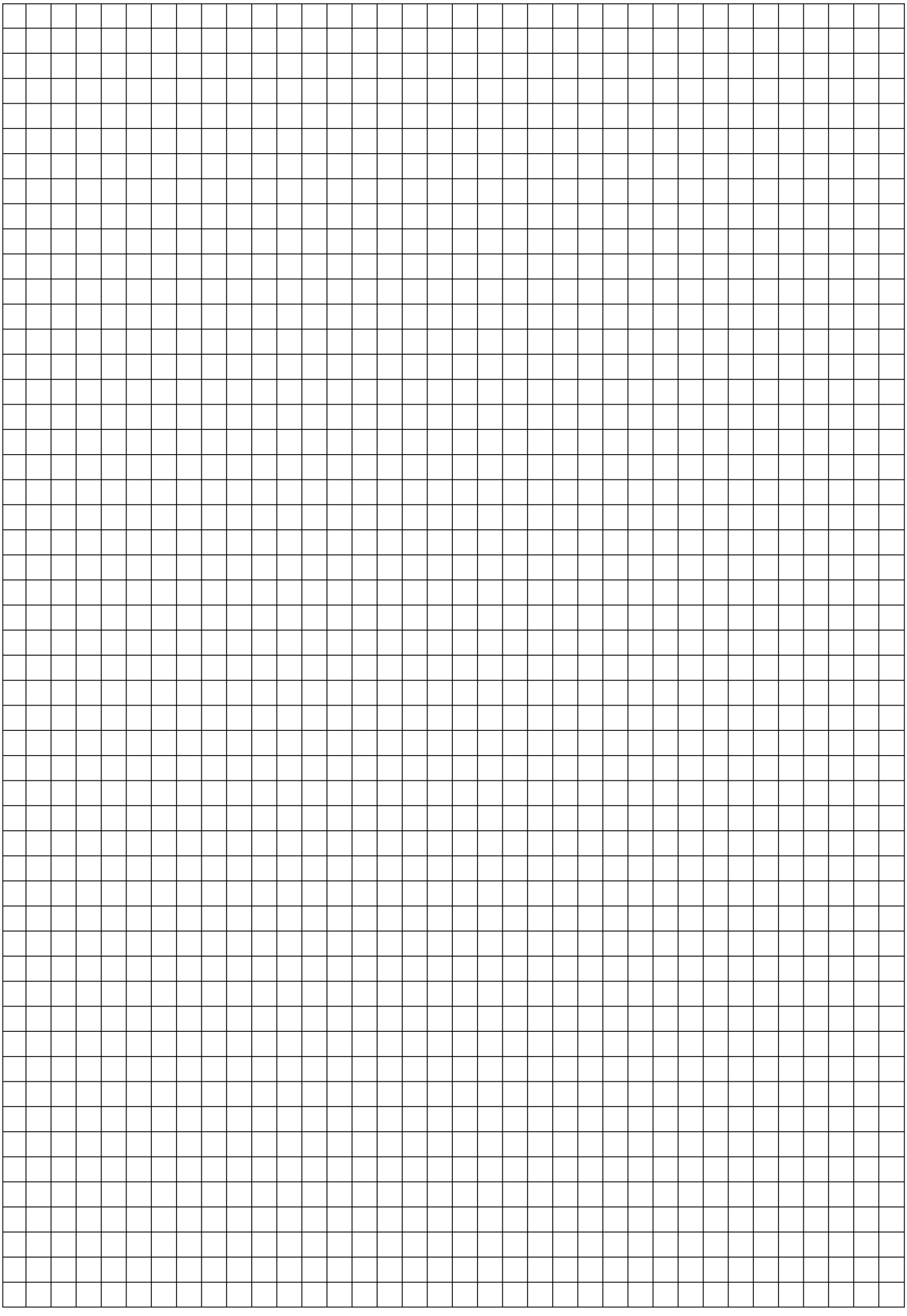
**Scrap Graph Paper — this sheet will *not* be scored.**



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## High School Math Reference Sheet

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

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

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

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

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

ALGEBRA I

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ALGEBRA I

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

## Regents Examination in Algebra I – v202

### Scoring Key: Part I (Multiple-Choice Questions)

| Examination | Date | Question Number | Scoring Key | Question Type | Credit | Weight |
|---|---|---|---|---|---|---|
| Algebra I | v202 | **1** | 2 | MC | 2 | 1 |
| Algebra I | v202 | **2** | 1 | MC | 2 | 1 |
| Algebra I | v202 | **3** | 2 | MC | 2 | 1 |
| Algebra I | v202 | **4** | 4 | MC | 2 | 1 |
| Algebra I | v202 | **5** | 2 | MC | 2 | 1 |
| Algebra I | v202 | **6** | 4 | MC | 2 | 1 |
| Algebra I | v202 | **7** | 2 | MC | 2 | 1 |
| Algebra I | v202 | **8** | 2 | MC | 2 | 1 |
| Algebra I | v202 | **9** | 3 | MC | 2 | 1 |
| Algebra I | v202 | **10** | 3 | MC | 2 | 1 |
| Algebra I | v202 | **11** | 4 | MC | 2 | 1 |
| Algebra I | v202 | **12** | 1 | MC | 2 | 1 |
| Algebra I | v202 | **13** | 3 | MC | 2 | 1 |
| Algebra I | v202 | **14** | 3 | MC | 2 | 1 |
| Algebra I | v202 | **15** | 1 | MC | 2 | 1 |
| Algebra I | v202 | **16** | 2 | MC | 2 | 1 |
| Algebra I | v202 | **17** | 4 | MC | 2 | 1 |
| Algebra I | v202 | **18** | 4 | MC | 2 | 1 |
| Algebra I | v202 | **19** | 3 | MC | 2 | 1 |
| Algebra I | v202 | **20** | 2 | MC | 2 | 1 |
| Algebra I | v202 | **21** | 4 | MC | 2 | 1 |
| Algebra I | v202 | **22** | 4 | MC | 2 | 1 |
| Algebra I | v202 | **23** | 2 | MC | 2 | 1 |
| Algebra I | v202 | **24** | 1 | MC | 2 | 1 |

## Regents Examination in Algebra I – v202

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

| Examination | Date | Question Number | Scoring Key | Question Type | Credit | Weight |
|---|---|---|---|---|---|---|
| Algebra I | v202 | **25** | - | CR | 2 | 1 |
| Algebra I | v202 | **26** | - | CR | 2 | 1 |
| Algebra I | v202 | **27** | - | CR | 2 | 1 |
| Algebra I | v202 | **28** | - | CR | 2 | 1 |
| Algebra I | v202 | **29** | - | CR | 2 | 1 |
| Algebra I | v202 | **30** | - | CR | 2 | 1 |
| Algebra I | v202 | **31** | - | CR | 2 | 1 |
| Algebra I | v202 | **32** | - | CR | 2 | 1 |
| Algebra I | v202 | **33** | - | CR | 4 | 1 |
| Algebra I | v202 | **34** | - | CR | 4 | 1 |
| Algebra I | v202 | **35** | - | CR | 4 | 1 |
| Algebra I | v202 | **36** | - | CR | 4 | 1 |
| Algebra I | v202 | **37** | - | CR | 6 | 1 |

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

The chart for determining students' final examination scores for the **v202 Regents Examination in Algebra I** will be posted on the Department's web site at: http://www.p12.nysed.gov/assessment/ 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

## v202

## RATING GUIDE

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

## Mechanics of Rating

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

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

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

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

Raters should record the student's scores for all questions and the total raw score on the student's separate answer sheet. Then the student's total raw score should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: http://www.p12.nysed.gov/assessment/ on the day of the exam. Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that, for each administration, the conversion chart provided for that administration be used to determine the student's final score. The student's scale score should be entered in the box provided on the student's separate answer sheet. The scale score is the student's final examination score.

# General Rules for Applying Mathematics Rubrics

## I. General Principles for Rating

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

## II. Full-Credit Responses

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

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

## III. Appropriate Work

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

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

## IV. Multiple Errors

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

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

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

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

## Part II

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

(25) **[2]** $y \geq -4$, and correct work is shown.

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

***or***

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

***or***

**[1]** $y \geq -4$, 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.

(26) **[2]** The function is graphed correctly over the given interval.

**[1]** One computational or graphing error is made.

***or***

**[1]** One conceptual error is made.

**[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]** Correct explanations in context for both the slope and $y$-intercept are written.

**[1]** One conceptual error is made.

***or***

**[1]** A correct explanation in context for either the slope or the $y$-intercept is written.

**[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]** $(x + 2)(x - 2)(x^2 + 4)$, and correct work is shown.

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

***or***

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

***or***

**[1]** $(x^2 + 4)(x^2 - 4)$ is written, but no further correct work is shown.

***or***

**[1]** $(x + 2)(x - 2)(x^2 + 4)$, 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.

(29) **[2]** No, and a correct explanation is written.

**[1]** One conceptual error is made.

***or***

**[1]** No, but the explanation is incomplete.

**[0]** No, 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.

(30) **[2]** $(7,-64)$, and correct work is shown using the method of completing the square.

**[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]** $(7,-64)$, but a method other than completing the square is used.

***or***

**[1]** $(7,-64)$, 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]** $F = \frac{9}{5}C + 32$, 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]** The expression $\frac{9}{5}C + 32$ is written.

***or***

**[1]** $F = \frac{9}{5}C + 32$, 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.

(32) **[2]** 2.14 and $-5.14$ are stated, 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]** Appropriate work is shown to find $\frac{-12 \pm \sqrt{848}}{8}$ or $\frac{-3 \pm \sqrt{53}}{2}$, but no further correct work is shown.

***or***

**[1]** 2.14 and $-5.14$, but a method other than algebraic is used.

***or***

**[1]** 2.14 and $-5.14$ are stated, 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]** $y = 1.72x + 69.4$, 0.97, and a correct explanation is written in the context of the problem.

**[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.

**[2]** $y = 1.72x + 69.4$ is written, but no further correct work is shown.

***or***

**[2]** 0.97, and a correct explanation is written.

**[1]** 0.97, but no further correct work is shown.

***or***

**[1]** A correct expression is written, 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.

(34) **[4]** $1.25x + .55(x + 4) + .75(x - 2) = 16$, and 6, and correct work is shown.

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

***or***

**[3]** A correct equation is written, but a method other than algebraic is used to find 6.

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

***or***

**[2]** $1.25x + .55(x + 4) + .75(x - 2) = 16$ is written, but no further correct work is shown.

**[1]** 6 is found, but a method other than algebraic is used, and no further correct work is shown.

***or***

**[1]** 6, 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.

(35) **[4]** Both inequalities are graphed correctly, and at least one is labeled, 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 explanation is incomplete.

***or***

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

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

***or***

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

***or***

**[2]** A correct explanation indicating a negative response is written, but no further correct work is shown.

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

***or***

**[1]** $y = -\frac{3}{4}x + 5$ and $3x - 2y = 4$ are graphed correctly, and at least one is labeled, but no further correct work is shown.

**[0]** No, 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.

(36) **[4]** 112, (3,256), and a correct explanation in context is written, and a correct interval is stated.

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

***or***

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

**[2]** 112 and (3,256) are stated, but no further correct work is shown.

**[1]** 112 is stated, but no further correct work is shown.

***or***

**[1]** (3,256) is stated, but no further correct work is shown.

***or***

**[1]** A correct explanation in context is written, but no further correct work is stated.

***or***

**[1]** A correct interval 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]** $4l + 8m = 40$ and $5l + 2m = 28$, a correct justification indicating a negative response is given, and correct algebraic work is shown to find $l = 4.5$ and $m = 2.75$.

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

***or***

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

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

***or***

**[4]** A system of equations is stated 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]** $4l + 8m = 40$ and $5l + 2m = 28$ are stated, 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]** $4l + 8m = 40$ or $5l + 2m = 28$ is stated, but no further correct work is shown.

***or***

**[1]** $l = 4.5$ and $m = 2.75$, but no work is shown.

**[0]** 4.5 and 2.75, 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.

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# Map to the Learning Standards
# Algebra I
# v202

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

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

## v202

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

**The *Chart for Determining the Final Examination Score for the v202 Regents Examination in Algebra I* will be posted on the Department's web site at: http://www.p12.nysed.gov/assessment/ on the day of the exam. 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.p12.nysed.gov/assessment/teacher/evaluation.html.

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

## v202

## MODEL RESPONSE SET

**Table of Contents**

**Question 25**

**25** Solve algebraically for $y$:

$$4(y - 3) \leq 4(2y + 1)$$

$4y - 12 \leq 8y + 4$
$-4y \qquad -4y$

$-12 \leq 4y + 4$
$-4 \qquad -4$

$\frac{-16}{4} \leq \frac{4y}{4}$

$-4 \leq y$

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

## Question 25

**25** Solve algebraically for $y$:

$$\frac{4(y-3)}{4} \leq \frac{4(2y+1)}{4}$$

$$y-3 \leq 2y+1$$
$$-y \quad\quad -y$$

$$y+1 \geq -3$$
$$-1$$

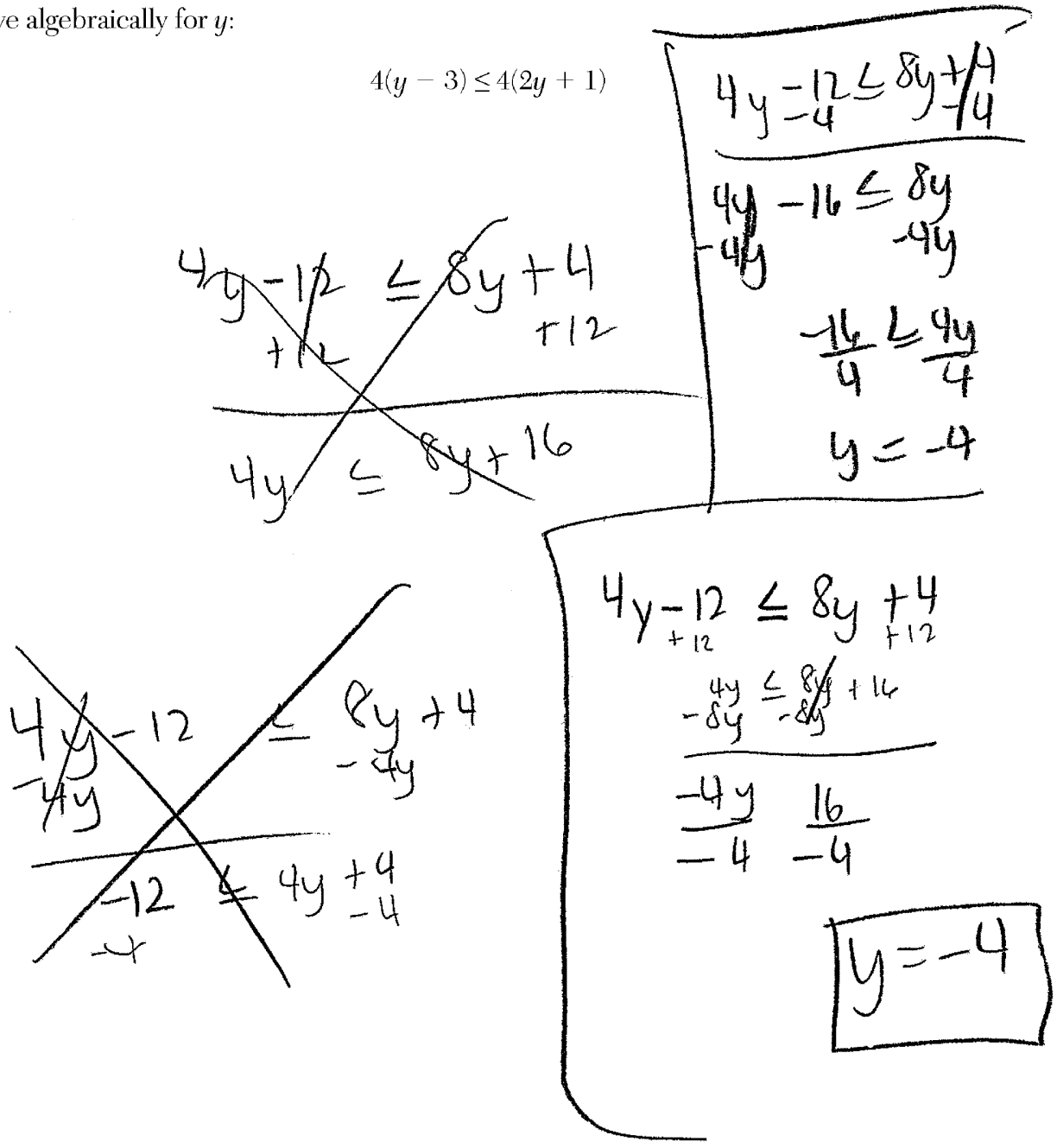
$$y \geq -4$$

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

**Question 25**

**25** Solve algebraically for $y$:

$$4(y - 3) \leq 4(2y + 1)$$




**Score 1:** The student expressed their answer as an equality.

## Question 25

**25** Solve algebraically for $y$:

$$4(y - 3) \leq 4(2y + 1)$$

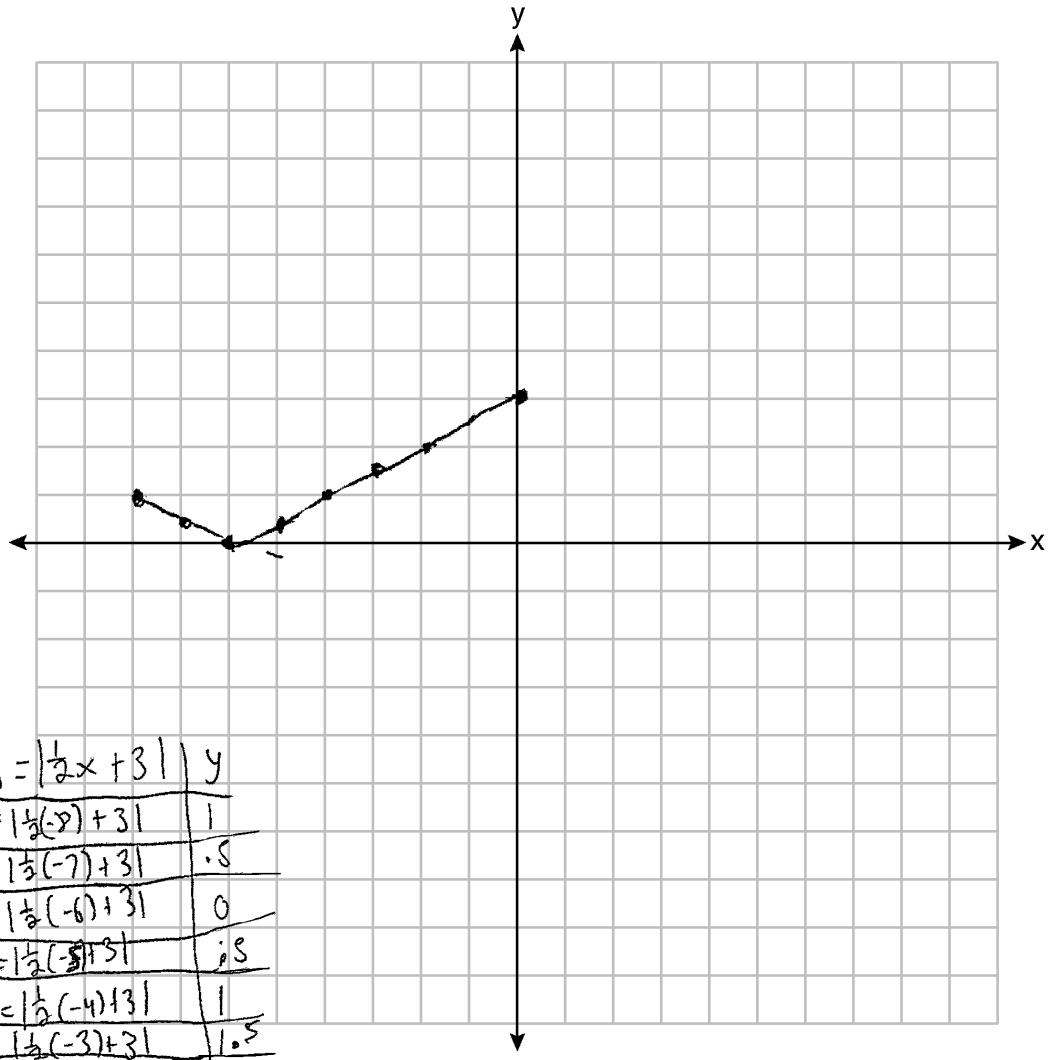
$4(y-3) \leq 4(2y+1)$

$4y - 12 \leq 8y + 4$

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

## Question 26

**26** Graph the function $f(x) = \left|\frac{1}{2}x + 3\right|$ over the interval $-8 \leq x \leq 0$.

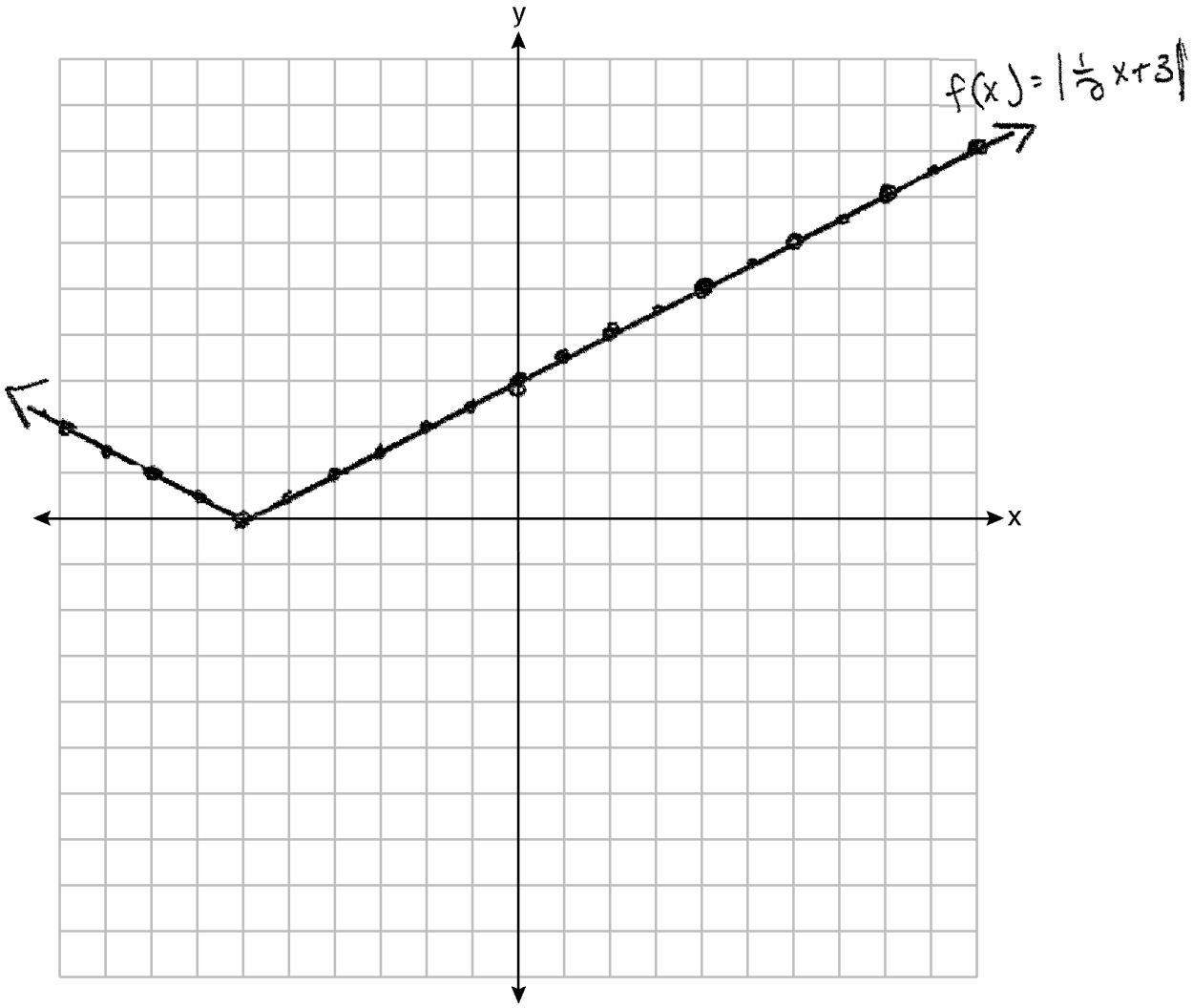



| X | $y = \left\|\frac{1}{2}x + 3\right\|$ | y |
|---|---|---|
| -8 | $y = \left\|\frac{1}{2}(-8) + 3\right\|$ | 1 |
| -7 | $y = \left\|\frac{1}{2}(-7) + 3\right\|$ | .5 |
| -6 | $y = \left\|\frac{1}{2}(-6) + 3\right\|$ | 0 |
| -5 | $y = \left\|\frac{1}{2}(-5) + 3\right\|$ | .5 |
| -4 | $y = \left\|\frac{1}{2}(-4) + 3\right\|$ | 1 |
| -3 | $y = \left\|\frac{1}{2}(-3) + 3\right\|$ | 1.5 |
| -2 | $y = \left\|\frac{1}{2}(-2) + 3\right\|$ | 2 |
| -1 | $y = \left\|\frac{1}{2}(-1) + 3\right\|$ | 2.5 |
| 0 | $y = \left\|\frac{1}{2}(0) + 3\right\|$ | 3 |

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

## Question 26

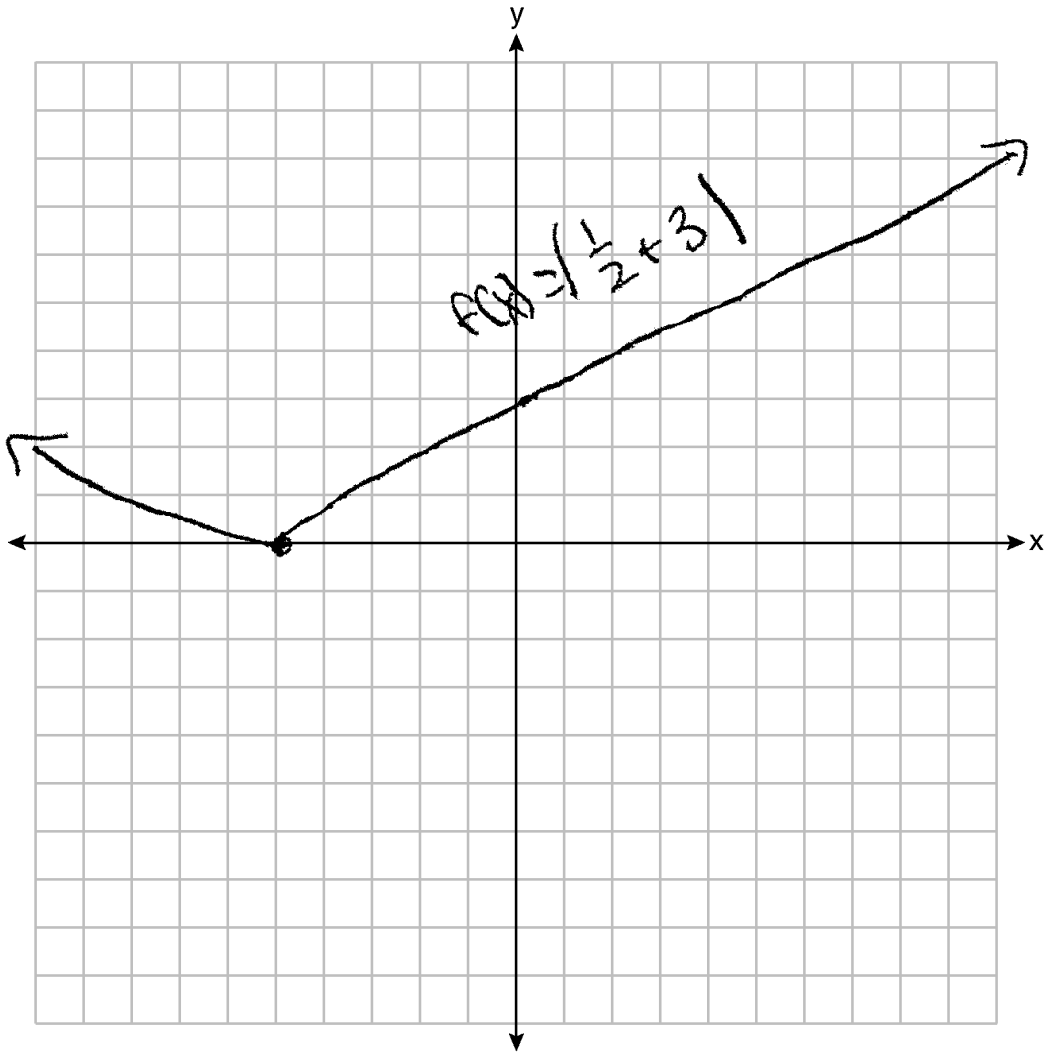
**26** Graph the function $f(x) = \left|\frac{1}{2}x + 3\right|$ over the interval $-8 \leq x \leq 0$.




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

## Question 26

**26** Graph the function $f(x) = \left|\frac{1}{2}x + 3\right|$ over the interval $-8 \leq x \leq 0$.




**Score 0:** The student made two graphing errors.

## Question 27

**27** The table below shows the height in feet, $h(t)$, of a hot-air balloon and the number of minutes, $t$, the balloon is in the air.

| **Time** (min) | 2 | 5 | 7 | 10 | 12 |
|---|---|---|---|---|---|
| **Height** (ft) | 64 | 168 | 222 | 318 | 369 |

The function $h(t) = 30.5t + 8.7$ can be used to model this data table.

Explain the meaning of the slope in the context of the problem.

Slope - The height of the hot air balloon increases 30.5 ft every minute.

Explain the meaning of the $y$-intercept in the context of the problem.

y-int. - The hot air balloon starts 8.7 ft off the ground

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

## Question 27

**27** The table below shows the height in feet, $h(t)$, of a hot-air balloon and the number of minutes, $t$, the balloon is in the air.

| **Time** (min) | 2 | 5 | 7 | 10 | 12 |
|---|---|---|---|---|---|
| **Height** (ft) | 64 | 168 | 222 | 318 | 369 |

The function $h(t) = 30.5t + 8.7$ can be used to model this data table.

Explain the meaning of the slope in the context of the problem.

The slope represents the rate of change of the balloon, meaning how fast the balloon is rising.

Explain the meaning of the $y$-intercept in the context of the problem.

The yint represents the height of the balloon at time 0.

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

## Question 27

**27** The table below shows the height in feet, $h(t)$, of a hot-air balloon and the number of minutes, $t$, the balloon is in the air.

| **Time** (min) | 2 | 5 | 7 | 10 | 12 |
|---|---|---|---|---|---|
| **Height** (ft) | 64 | 168 | 222 | 318 | 369 |

The function $h(t) = 30.5t + 8.7$ can be used to model this data table.

Explain the meaning of the slope in the context of the problem.

Explain the meaning of the $y$-intercept in the context of the problem.

The y intercept represents the starting height of the air balloon.

**Score 1:** The student gave one correct explanation.

## Question 27

**27** The table below shows the height in feet, $h(t)$, of a hot-air balloon and the number of minutes, $t$, the balloon is in the air.

| **Time** (min) | 2 | 5 | 7 | 10 | 12 |
|---|---|---|---|---|---|
| **Height** (ft) | 64 | 168 | 222 | 318 | 369 |

The function $h(t) = 30.5t + 8.7$ can be used to model this data table.

Explain the meaning of the slope in the context of the problem.

The slope is 30.5t and the y-intercept is 8.7. The slope means the height in feet, h, of a hot air balloon.

Explain the meaning of the $y$-intercept in the context of the problem.

The y-intercept 8.7 is the number of mintes the balloon is in the air.

**Score 0:** The student gave an incorrect response.

**Question 28**

**28** Factor $x^4 - 16$ completely.

$x^4 - 16$

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

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

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

**Question 28**

**28** Factor $x^4 - 16$ completely.

$\sqrt{x^4}\sqrt{16}$

$x^2 - 4$

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

**Score 1:** The student made a conceptual error, but factored $x^2 - 4$ correctly.

**Question 28**

**28** Factor $x^4 - 16$ completely.

$(x^2-16)(x^2+16)$

$(x+4)(x-4)(x^2+16)$

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

**Question 28**

**28** Factor $x^4 - 16$ completely.

(x-16) (x-16) (x-16) (x-16)

**Score 0:** The student gave a completely incorrect response.

**Question 29**

**29** Mike knows that (3,6.5) and (4,17.55) are points on the graph of an exponential function, $g(x)$, and he wants to find another point on the graph of this function.

First, he subtracts 6.5 from 17.55 to get 11.05.
Next, he adds 11.05 and 17.55 to get 28.6.
He states that (5,28.6) is a point on $g(x)$.

Is he correct? Explain your reasoning.

No, he is not correct. He found the next point as if it was a linear equation, not an exponential equation.

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

## Question 29

**29** Mike knows that (3,6.5) and (4,17.55) are points on the graph of an exponential function, $g(x)$, and he wants to find another point on the graph of this function.

First, he subtracts 6.5 from 17.55 to get 11.05.
Next, he adds 11.05 and 17.55 to get 28.6.
He states that (5,28.6) is a point on $g(x)$.

Is he correct? Explain your reasoning.

$y = (.3302) \cdot (2.7)^x$

$28.6 \neq .3302 \cdot (2.7)^5$

$28.6 \neq 47.3801$

He is incorrect because when you plug in 5 it does not equal 28.6.

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

**Question 29**

**29** Mike knows that (3,6.5) and (4,17.55) are points on the graph of an exponential function, $g(x)$, and he wants to find another point on the graph of this function.

First, he subtracts 6.5 from 17.55 to get 11.05.

Next, he adds 11.05 and 17.55 to get 28.6.

He states that (5,28.6) is a point on $g(x)$.

Is he correct? Explain your reasoning.

(3,6.5)(4,17.55) $\frac{17.55 - 6.5}{4 - 3} = \frac{11.05}{1}$

$y = 11.05x + b$

$6.5 = 11.05(3) + b$

$6.5 = 33.15 + b$

$-26.65 = b$

$y = 11.05x - 26.65$

$28.6 = 11.05(5) - 26.65$

$28.6 = 55.25 - 26.65$

$28.6 = 28.6$

Mike is correct because the equation would have the equation $g(x) = 11.05x - 26.65$ and the coordinate (5, 28.6) fits into the equation

**Score 1:** The student wrote a correct justification for a linear function.

**Question 29**

**29** Mike knows that (3,6.5) and (4,17.55) are points on the graph of an exponential function, $g(x)$, and he wants to find another point on the graph of this function.

First, he subtracts 6.5 from 17.55 to get 11.05.

Next, he adds 11.05 and 17.55 to get 28.6.

He states that (5,28.6) is a point on $g(x)$.

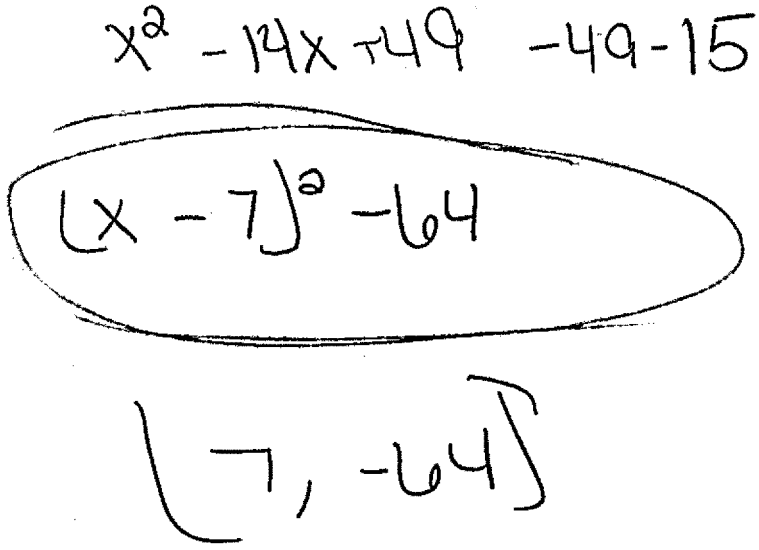
Is he correct? Explain your reasoning.

Yes, because the rate of change is increasing at a steady amount everytime.

**Score 0:** The student gave a completely incorrect response.

## Question 30

**30** Use the method of completing the square to determine the vertex of $f(x) = x^2 - 14x - 15$. State the coordinates of the vertex.




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

## Question 30

**30** Use the method of completing the square to determine the vertex of $f(x) = x^2 - 14x - 15$. State the coordinates of the vertex.

$x^2 - 14x - 15$

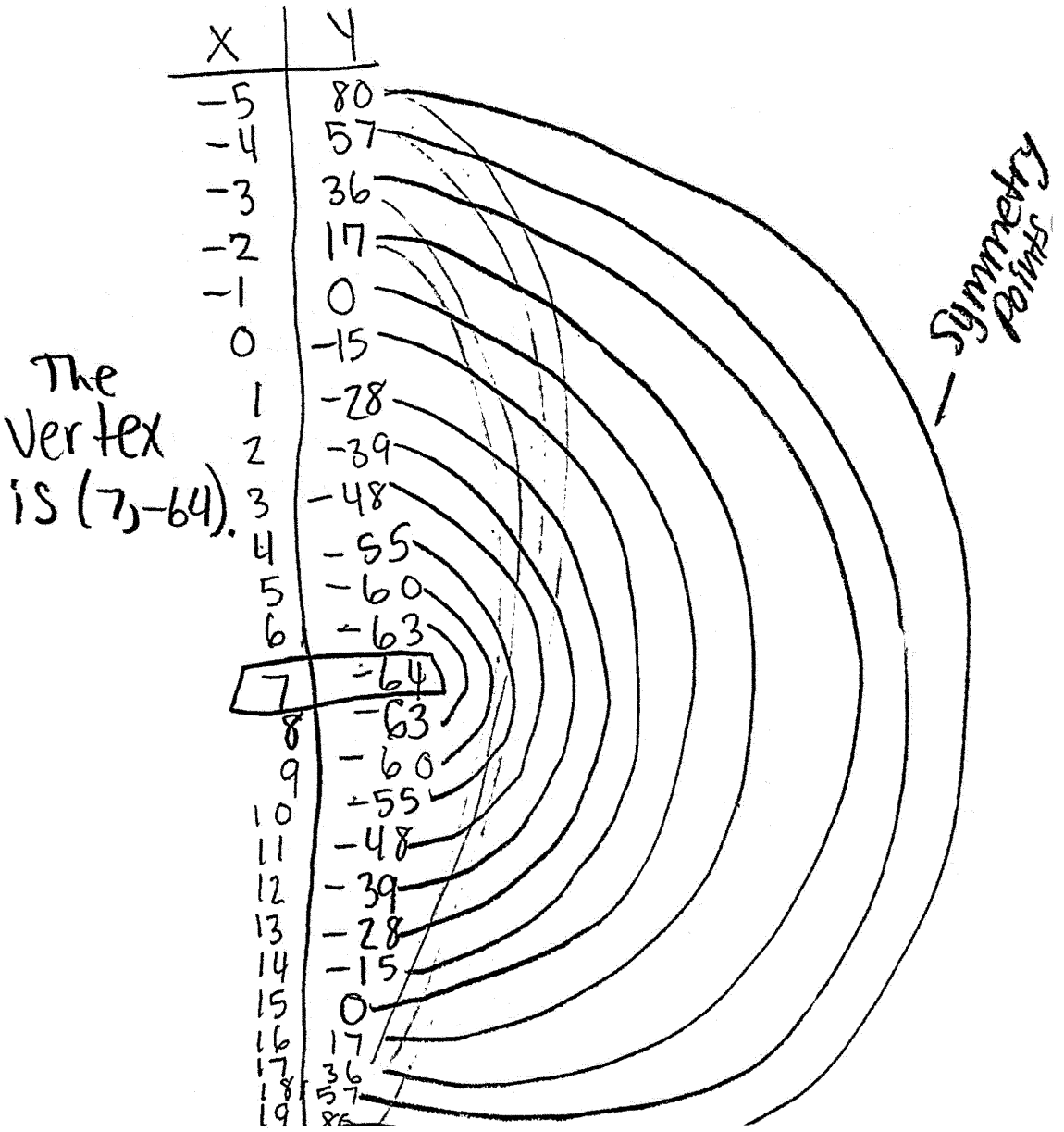
$x^2 - 14x + 49 - 15 - 49$

$(x - 7)^2 - 64$

**Score 1:** The student did not state the coordinates of the vertex.

**Question 30**

**30** Use the method of completing the square to determine the vertex of $f(x) = x^2 - 14x - 15$. State the coordinates of the vertex.




**Score 1:** The student used a method other than completing the square to find the vertex.

**Question 30**

**30** Use the method of completing the square to determine the vertex of $f(x) = x^2 - 14x - 15$. State the coordinates of the vertex.

$x^2 - 14x + 7.5 = 15 - 7.5$

$x^2 - 14x + 7.5 = 7.5$

$(x - 7)^2 = 7.5$

**Score 0:** The student gave an incorrect response.

## Question 31

**31** The temperature inside a cooling unit is measured in degrees Celsius, $C$. Josh wants to find out how cold it is in degrees Fahrenheit, $F$.

Solve the formula $C = \frac{5}{9}(F - 32)$ for $F$ so that Josh can convert Celsius to Fahrenheit.

$\frac{9}{5}C = F - 32$

$+32 \quad +32$

$\frac{9}{5}C + 32 = F$

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

## Question 31

**31** The temperature inside a cooling unit is measured in degrees Celsius, $C$. Josh wants to find out how cold it is in degrees Fahrenheit, $F$.

Solve the formula $C = \frac{5}{9}(F - 32)$ for $F$ so that Josh can convert Celsius to Fahrenheit.

$C = \frac{5}{9}F - \frac{5}{9}(32)$

$C = \frac{5}{9}F - 17.\overline{7}$

$C + 17.\overline{7} = \frac{5}{9}F$

$\frac{9C + 9(17.\overline{7})}{5} = F$

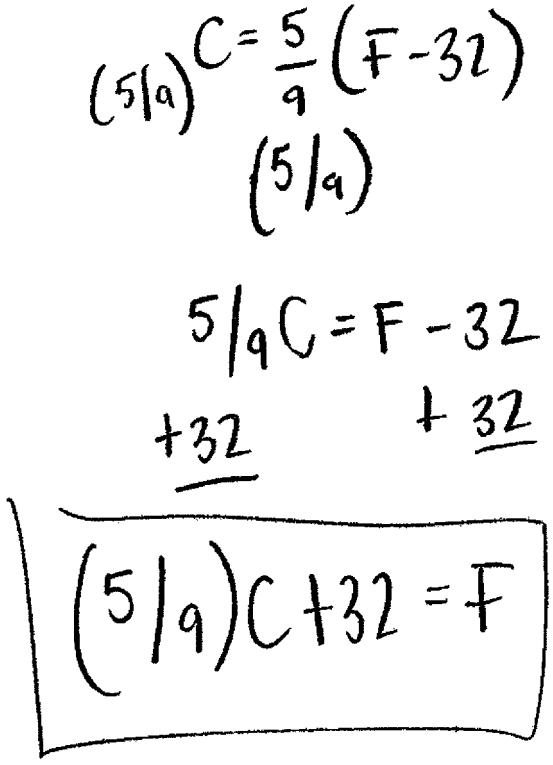
$\frac{9C + 160}{5} = F$

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

## Question 31

**31** The temperature inside a cooling unit is measured in degrees Celsius, $C$. Josh wants to find out how cold it is in degrees Fahrenheit, $F$.

Solve the formula $C = \frac{5}{9}(F - 32)$ for $F$ so that Josh can convert Celsius to Fahrenheit.

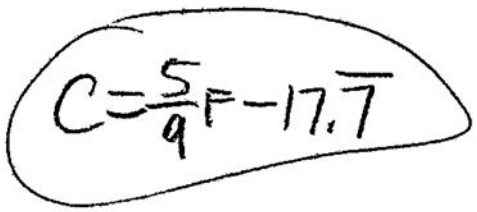



**Score 1:** The student made a computational error.

## Question 31

**31** The temperature inside a cooling unit is measured in degrees Celsius, $C$. Josh wants to find out how cold it is in degrees Fahrenheit, $F$.

Solve the formula $C = \frac{5}{9}(F - 32)$ for $F$ so that Josh can convert Celsius to Fahrenheit.




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

**Question 32**

**32** Solve $4w^2 + 12w - 44 = 0$ algebraically for $w$, to the *nearest hundredth*.

$4w^2 + 12w - 44 = 0$ $\quad ax^2 + bx + c$

$$w = \frac{-12 \pm \sqrt{(12)^2 - 4(4)(-44)}}{2(4)}$$

$$w = \frac{-12 \pm \sqrt{848}}{8}$$

$w = 2.14$

$w = -5.14$

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

**Question 32**

**32** Solve $4w^2 + 12w - 44 = 0$ algebraically for $w$, to the *nearest hundredth*.

$\frac{4w^2}{4} + \frac{12w}{4} - \frac{44}{4} = \frac{0}{4}$

$w^2 + 3w - 11 = 0$

$+11 \quad +11$

$w^2 + 3w + \frac{9}{4} = 11 + \frac{9}{4}$

$\left(\frac{3}{2}\right)^2$

$\frac{9}{4}$

$(w + \frac{3}{2})(w + \frac{3}{2}) = \frac{53}{4}$

$\sqrt{(w + \frac{3}{2})^2} = \sqrt{\frac{53}{4}}$

$w + \frac{3}{2} = \pm\sqrt{\frac{53}{4}}$

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

$w = -\frac{3}{2} \pm \sqrt{\frac{53}{4}}$

**Score 1:** The student did not round their answers to the nearest hundredth.

**Question 32**

**32** Solve $4w^2 + 12w - 44 = 0$ algebraically for $w$, to the *nearest hundredth*.

$$x = \frac{-12 \pm \sqrt{12^2 - 4(4)(-44)}}{2(4)}$$

$$x = \frac{-12 \pm \sqrt{848}}{8}$$

**Score 1:** The student did not round their answers to the nearest hundredth.

**Question 32**

**32** Solve $4w^2 + 12w - 44 = 0$ algebraically for $w$, to the *nearest hundredth*.

$\frac{4w^2+12w-44=0}{4}$

A b c

$w^2+3w-11=0$

$-3w \quad +11 \quad +11$

$\sqrt{w^2} = 3\times+11$

$w = 3w+11$

$-3w \quad -3w$

$-2w = 11$

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

$w = -5.5$

**Score 0:** The student gave an incorrect response.

## Question 33

**33** Joey recorded his heart rate, in beats per minute (bpm), after doing different numbers of jumping jacks. His results are shown in the table below.

| Number of Jumping Jacks x | Heart Rate (bpm) y |
|---|---|
| 0 | 68 |
| 10 | 84 |
| 15 | 104 |
| 20 | 100 |
| 30 | 120 |

State the linear regression equation that estimates the heart rate per number of jumping jacks.

Calculator: stat edit, then calc lin reg

$y = 1.72x + 69.4$

State the correlation coefficient of the linear regression equation, rounded to the *nearest hundredth*.

$r \approx .97$

Explain what the correlation coefficient suggests in the context of this problem.

The correlation coefficient being very close to 1 (perfect line of best fit) suggests that as the number of jumping jacks increases, the heart rate will also increase. There is a very strong correlation between them.

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

## Question 33

**33** Joey recorded his heart rate, in beats per minute (bpm), after doing different numbers of jumping jacks. His results are shown in the table below.

| **Number of Jumping Jacks** **x** | **Heart Rate** (bpm) **y** |
|---|---|
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| 30 | 120 |

State the linear regression equation that estimates the heart rate per number of jumping jacks.

$y = 1.72x + 69.4$

State the correlation coefficient of the linear regression equation, rounded to the *nearest hundredth*.

$r = .97$

Explain what the correlation coefficient suggests in the context of this problem.

Correlation Coefficient suggest that the line is a good representation for the data due to the fact the correlation coefficient is close to 1

**Score 3:** The student did not write an explanation in the context of the problem.

## Question 33

**33** Joey recorded his heart rate, in beats per minute (bpm), after doing different numbers of jumping jacks. His results are shown in the table below.

| Number of Jumping Jacks x | Heart Rate (bpm) y |
|---|---|
| 0 | 68 |
| 10 | 84 |
| 15 | 104 |
| 20 | 100 |
| 30 | 120 |

$y = ax + b$
$a = 1.989189189$
$b = 67.35135135$

$r^2 = 0.9261407156$
$r = 0.9623620502$

State the linear regression equation that estimates the heart rate per number of jumping jacks.

$y = 1.99x + 67.35$

State the correlation coefficient of the linear regression equation, rounded to the *nearest hundredth*.

0.96

Explain what the correlation coefficient suggests in the context of this problem.

As the number of jumping jacks increases, the heart rate increases.

**Score 3:** The student made a mistake putting the data in the calculator, but used the values that they got on their calculator display appropriately.

## Question 33

**33** Joey recorded his heart rate, in beats per minute (bpm), after doing different numbers of jumping jacks. His results are shown in the table below.

| **Number of Jumping Jacks** **x** | **Heart Rate** (bpm) **y** |
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| 20 | 100 |
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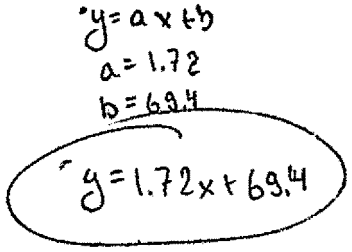
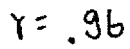
State the linear regression equation that estimates the heart rate per number of jumping jacks.




State the correlation coefficient of the linear regression equation, rounded to the *nearest hundredth*.




Explain what the correlation coefficient suggests in the context of this problem.

**Score 2:** The student wrote a correct linear regression equation, but no further correct work was shown.

## Question 33

**33** Joey recorded his heart rate, in beats per minute (bpm), after doing different numbers of jumping jacks. His results are shown in the table below.

| **Number of Jumping Jacks** **x** | **Heart Rate** (bpm) **y** |
|---|---|
| 0 | 68 |
| 10 | 84 |
| 15 | 104 |
| 20 | 100 |
| 30 | 120 |

State the linear regression equation that estimates the heart rate per number of jumping jacks.

M = 1.72(x) + 69.4

State the correlation coefficient of the linear regression equation, rounded to the *nearest hundredth*.

0.98

Explain what the correlation coefficient suggests in the context of this problem.

**Score 1:** The student wrote a correct expression, but no further correct work was shown.

## Question 33

**33** Joey recorded his heart rate, in beats per minute (bpm), after doing different numbers of jumping jacks. His results are shown in the table below.

| **Number of Jumping Jacks** **x** | **Heart Rate** (bpm) **y** |
|---|---|
| 0 | 68 |
| 10 | 84 |
| 15 | 104 |
| 20 | 100 |
| 30 | 120 |

State the linear regression equation that estimates the heart rate per number of jumping jacks.

$y \approx 20x + b$

State the correlation coefficient of the linear regression equation, rounded to the *nearest hundredth*.

Explain what the correlation coefficient suggests in the context of this problem.

**Score 0:** The student gave a completely incorrect response.

## Question 34

**34** Hannah went to the school store to buy supplies and spent $16. She bought four more pencils than pens and two fewer erasers than pens. Pens cost $1.25 each, pencils cost $0.55 each, and erasers cost $0.75 each.

If $x$ represents the number of pens Hannah bought, write an equation in terms of $x$ that can be used to find how many of each item she bought.

$4+x=$ pencils
$x-2=$ erasers
$x=$ pens

Use your equation to determine algebraically how many pens Hannah bought.

$1.25x+0.55(4+x)+0.75(x-2)=16$
$1.25x+2.2+.55x+.75x-1.5=16$
$2.55x+.7=16$
$\frac{2.55x}{2.55}=\frac{15.3}{2.55}$
$x=6$

6 pens

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

**Question 34**

**34** Hannah went to the school store to buy supplies and spent \$16. She bought four more pencils than pens and two fewer erasers than pens. Pens cost \$1.25 each, pencils cost \$0.55 each, and erasers cost \$0.75 each.

If $x$ represents the number of pens Hannah bought, write an equation in terms of $x$ that can be used to find how many of each item she bought.

$1.25x + .55(x+4) + .75(x-2) = 16$

Use your equation to determine algebraically how many pens Hannah bought.

$x = 3$

$1.25(3) + .55(3+4) + .75(3-2) \stackrel{?}{=} 16$

$8.35 \neq 16$

$x = 4$ $1.25(4) + .55(4+4) + .75(4-2) \stackrel{?}{=} 16$

$10.9 \neq 16$

$x = 5$ $1.25(5) + .55(5+4) + .75(5-2) \stackrel{?}{=} 16$

$13.45 \neq 16$

$x = 6$ $1.25(6) + .55(6+4) + .75(6-2) = 16$

$16 = 16$ ✓

**Score 3:** The student wrote a correct equation, but used a method other than algebraic to find 6.

**Question 34**

**34** Hannah went to the school store to buy supplies and spent $16. She bought four more pencils than pens and two fewer erasers than pens. Pens cost $1.25 each, pencils cost $0.55 each, and erasers cost $0.75 each.

If $x$ represents the number of pens Hannah bought, write an equation in terms of $x$ that can be used to find how many of each item she bought.

$1.25x + .55(x+4) + .75(x-2) = 16$

Use your equation to determine algebraically how many pens Hannah bought.

6

**Score 3:** The student wrote a correct equation and stated 6, but no algebraic work was shown to find 6.

## Question 34

**34** Hannah went to the school store to buy supplies and spent $16. She bought four more pencils than pens and two fewer erasers than pens. Pens cost $1.25 each, pencils cost $0.55 each, and erasers cost $0.75 each.

If $x$ represents the number of pens Hannah bought, write an equation in terms of $x$ that can be used to find how many of each item she bought.

let x = the number of pens Hannah bought
let x+4 = # of pencils Hannah bough+
let x-2 = # of ~~erasers~~

$16 = 1.25x + .55(x+4) + .75(x-2)$

Use your equation to determine algebraically how many pens Hannah bought.

$1.25x + .55(x+4) + .75(x-2) = 16$

$1.25x + .55x + 2.2 + .75x - 15 = 16$

$2.55x + 12.8 = 16$

$-12.8 \quad -12.8$

$\frac{2.55x}{2.55} = \frac{3.2}{2.55}$

$x = 1.2549$ (es)

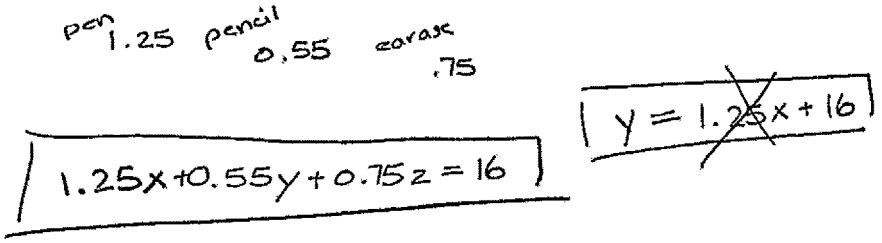
$x = 1.26$

**Score 2:** The student made multiple errors.

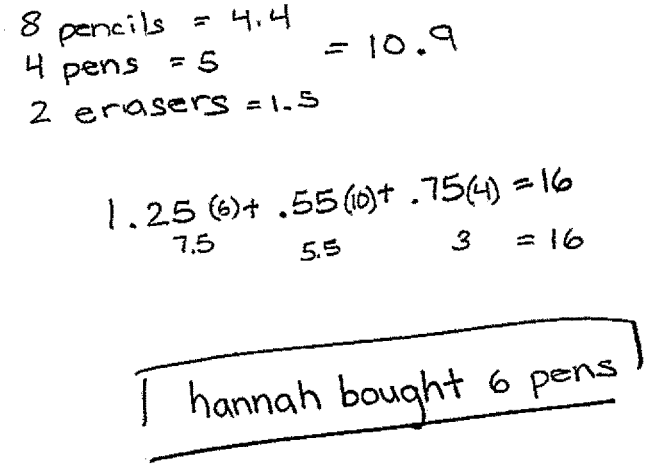
## Question 34

**34** Hannah went to the school store to buy supplies and spent $16. She bought four more pencils than pens and two fewer erasers than pens. Pens cost $1.25 each, pencils cost $0.55 each, and erasers cost $0.75 each.

If $x$ represents the number of pens Hannah bought, write an equation in terms of $x$ that can be used to find how many of each item she bought.




Use your equation to determine algebraically how many pens Hannah bought.




**Score 1:** The student stated 6, but no further correct work was shown.

## Question 34

**34** Hannah went to the school store to buy supplies and spent $16. She bought four more pencils than pens and two fewer erasers than pens. Pens cost $1.25 each, pencils cost $0.55 each, and erasers cost $0.75 each.

If $x$ represents the number of pens Hannah bought, write an equation in terms of $x$ that can be used to find how many of each item she bought.

$1.25x + 0.55 + 0.75 = 16$

Use your equation to determine algebraically how many pens Hannah bought.

$1.25x + 0.55 . 0.75 = 16.00$

$1.25x + 1.30 = 16.00$

$2.55x = 16.00$

$x = 6.2745098$

**Score 0:** The student gave a completely incorrect response.

## Question 35

**35** Graph the system of inequalities on the set of axes below:

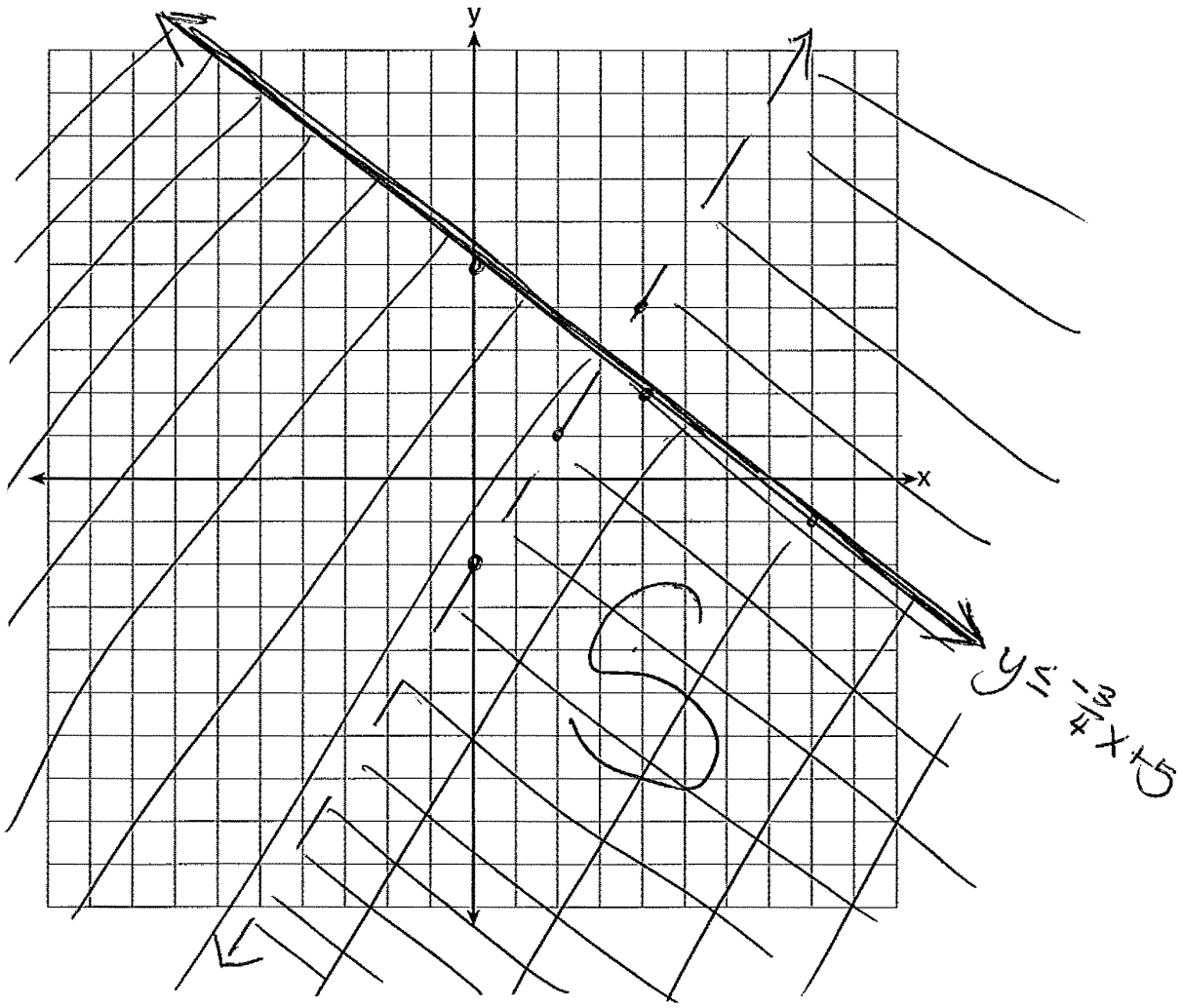
$$y \leq -\frac{3}{4}x + 5$$

$$3x - 2y > 4$$

$3x - 2y > 4$

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

$y < \frac{3}{2}x - 2$




Is (6,3) a solution to the system of inequalities? Explain your answer.

No, (6,3) does not lie in the solution set of the system of inequalities.

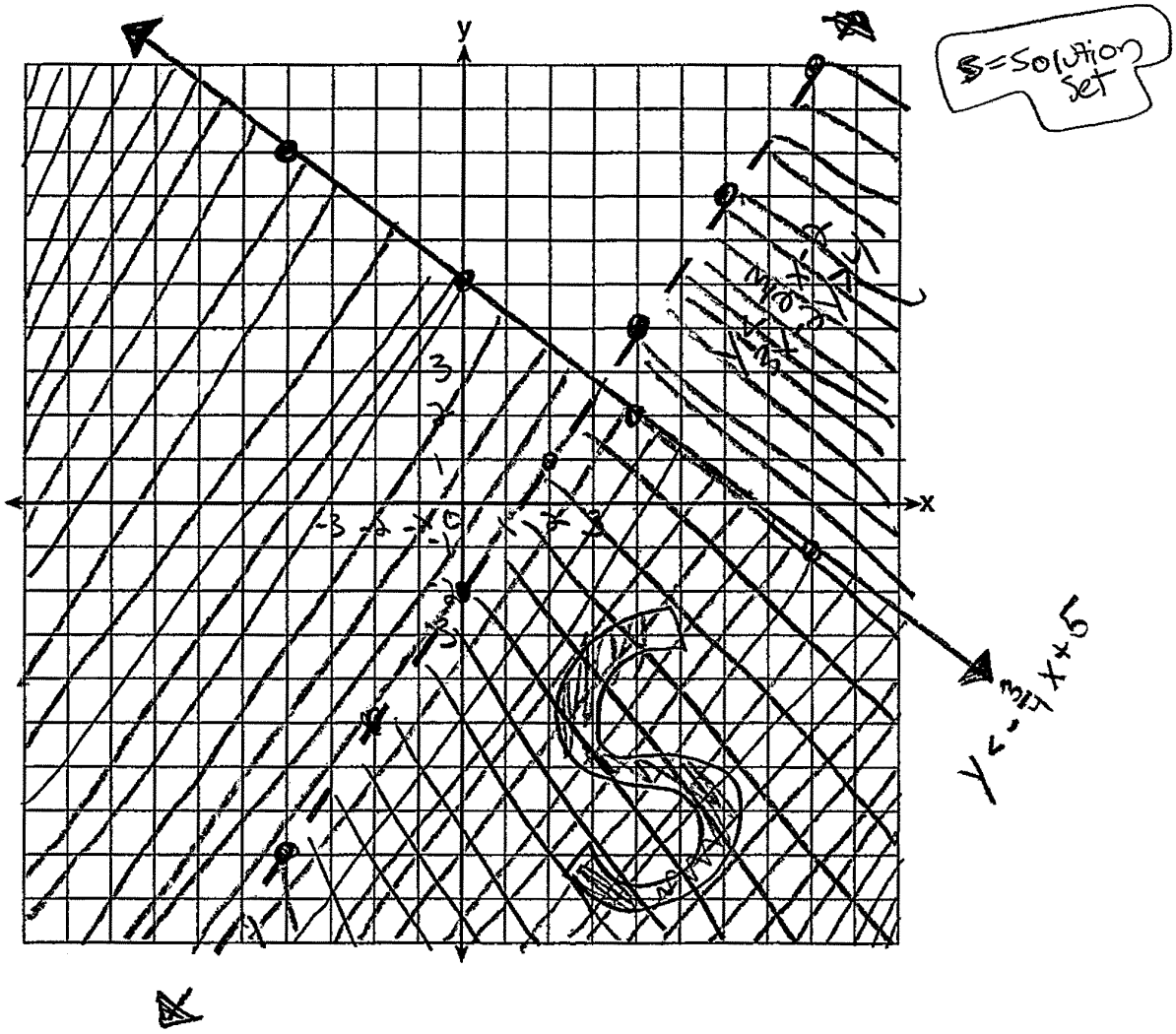
**Score 4:** The student gave a complete and correct response.

**Question 35**

**35** Graph the system of inequalities on the set of axes below:

$$y \leq -\frac{3}{4}x + 5$$

$$3x - 2y > 4$$




Is (6,3) a solution to the system of inequalities? Explain your answer.

No, this point is not a solution to the system of inequalities, because the point does not work.

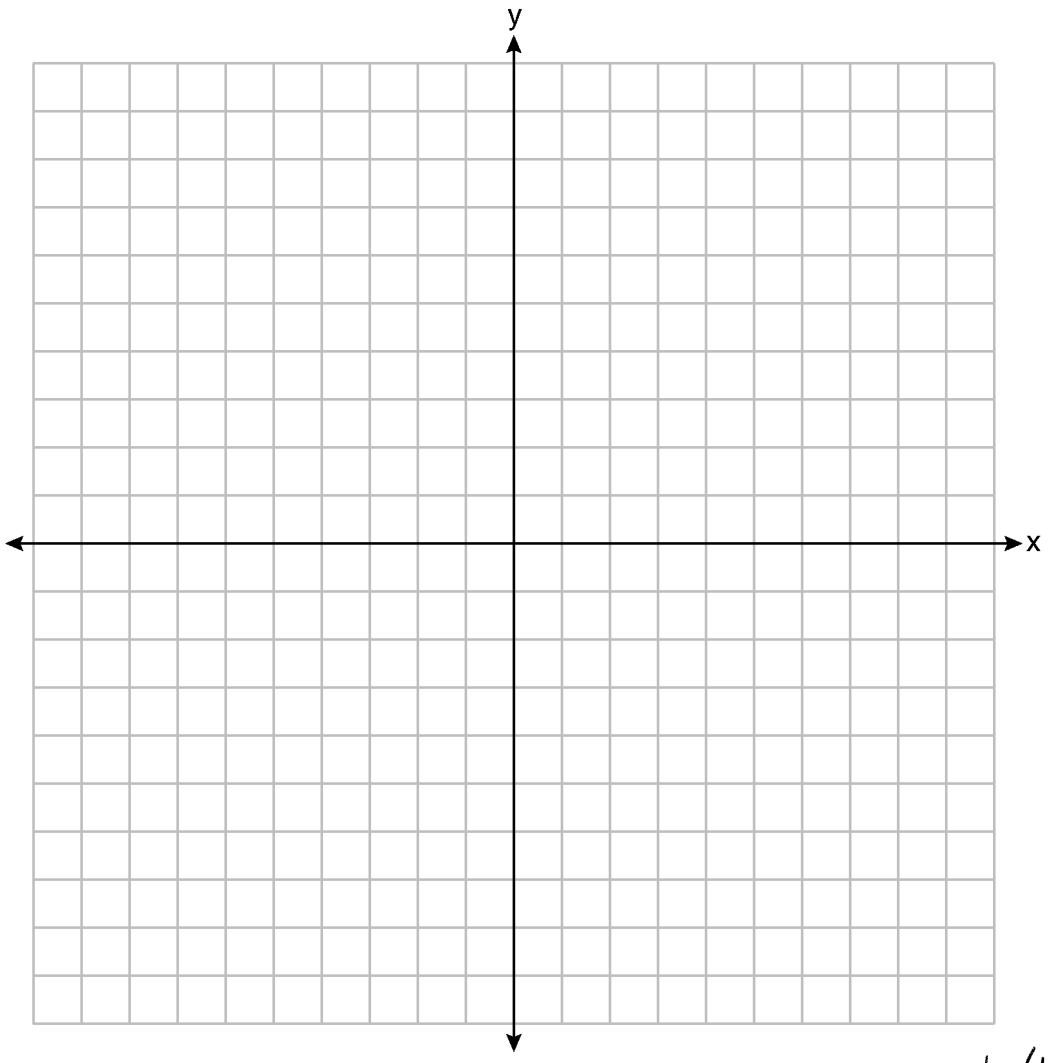
**Score 3:** The student wrote an incomplete explanation.

## Question 35

**35** Graph the system of inequalities on the set of axes below:

$$y \leq -\frac{3}{4}x + 5$$

$$3x - 2y > 4$$




x, y

Is (6,3) a solution to the system of inequalities? Explain your answer.

$3 \leq -\frac{3}{4}(6) + 5$

$3 \leq -\frac{18}{4} + 5$

$3 \leq \frac{1}{2}$ False

$3(6) - 2(3) > 4$

$18 - 6 > 4$

$12 > 4$

True

The point (6,3) is not a solution to the system of inequalities because the point is only true for $3x - 2y > 4$.

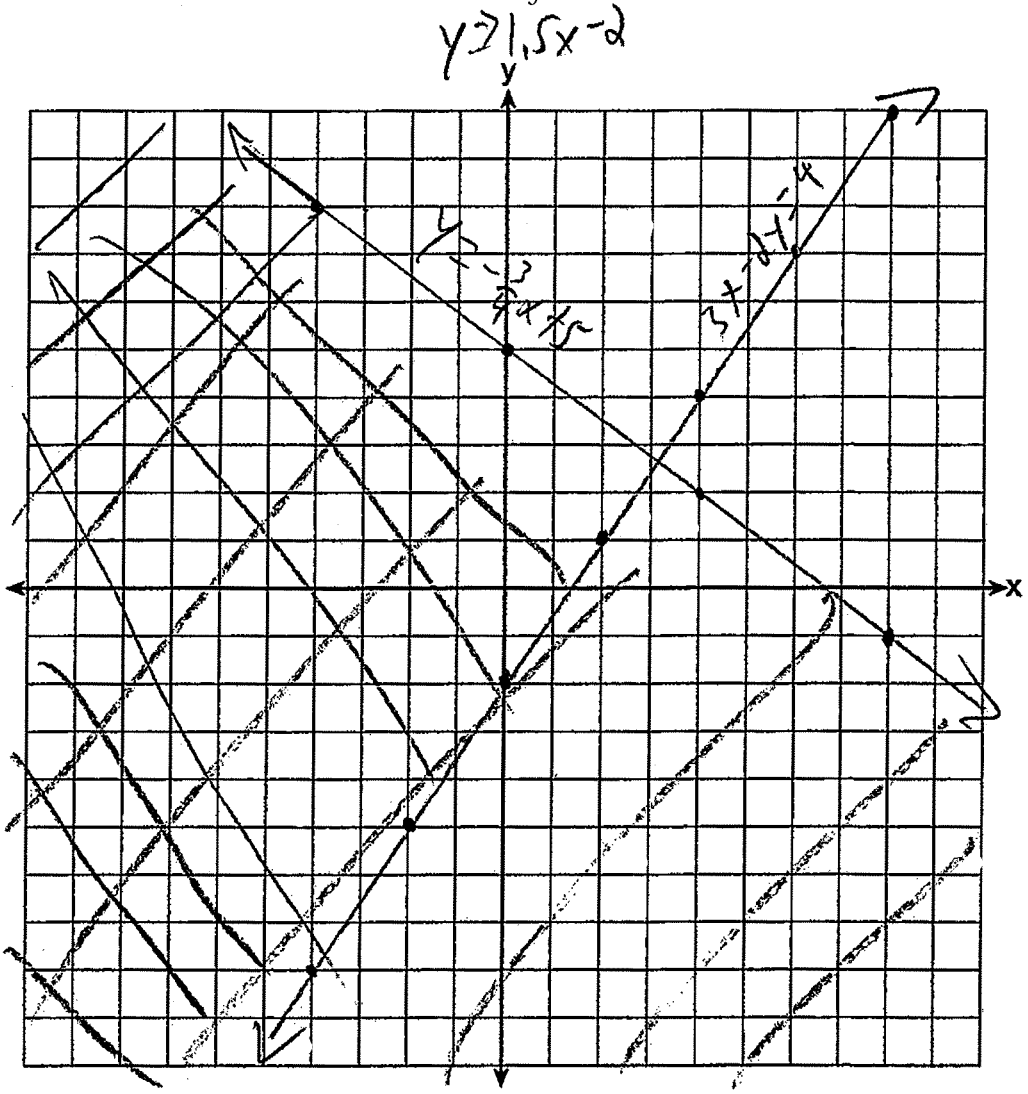
**Score 2:** The student wrote a correct explanation, but did not graph the system of inequalities.

## Question 35

**35** Graph the system of inequalities on the set of axes below:

$$y \leq -\frac{3}{4}x + 5$$

$$3x - 2y > 4$$




Is (6,3) a solution to the system of inequalities? Explain your answer.

**Score 1:** The student graphed and labeled the equations $y = -\frac{3}{4}x + 5$ and $3x - 2y = 4$ correctly, but no further correct work was shown.

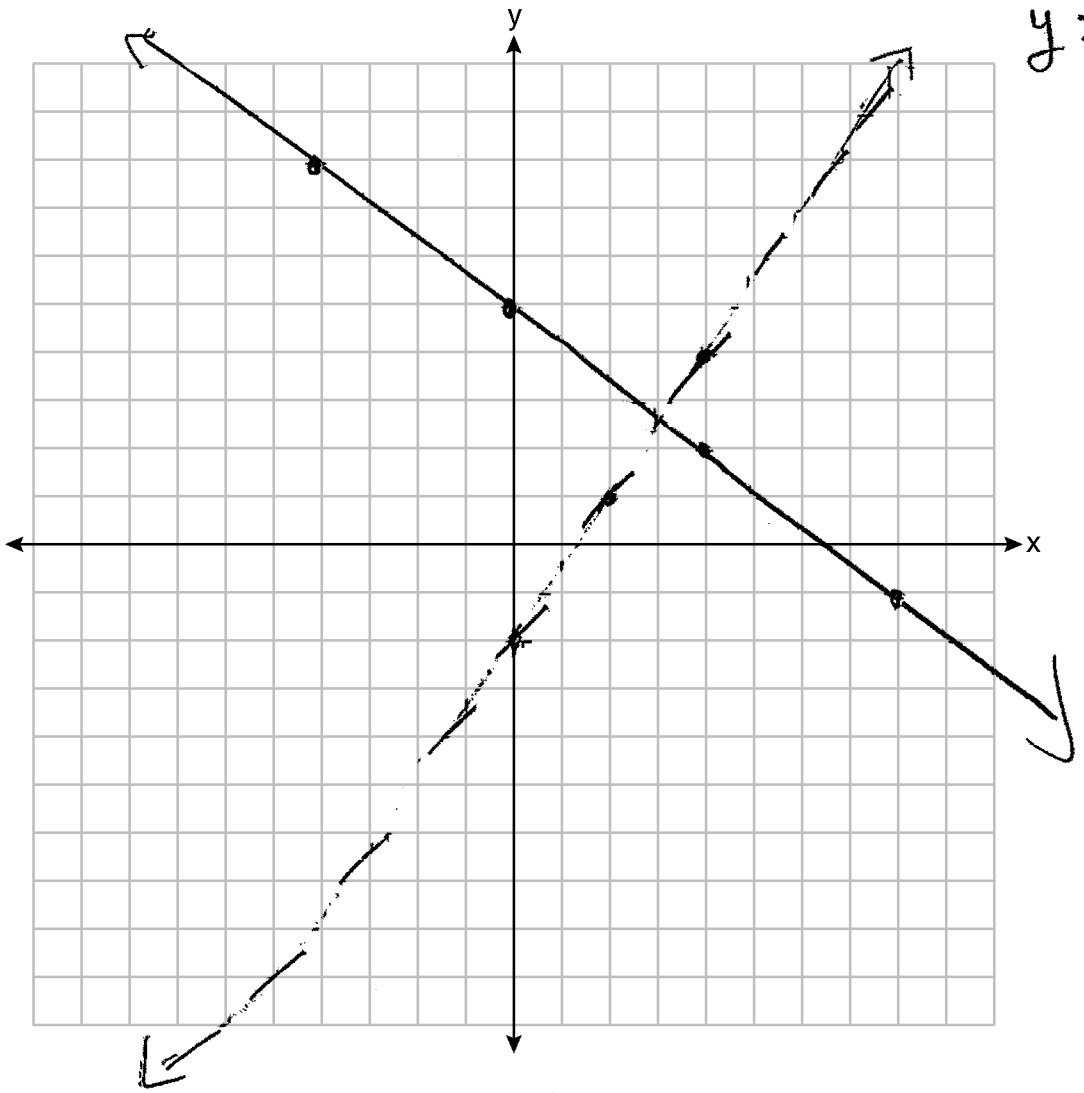
## Question 35

**35** Graph the system of inequalities on the set of axes below:

$$y \leq -\frac{3}{4}x + 5$$

$$3x - 2y > 4$$

$3x - 2y > 4$
$-3x \quad -3x$
$\frac{-2y}{-2} > \frac{-3x}{-2} + \frac{4}{-2}$
$y > \frac{3}{2} - 2$




Is (6,3) a solution to the system of inequalities? Explain your answer.

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

## Question 36

**36** A ball is projected up into the air from the surface of a platform to the ground below. The height of the ball above the ground, in feet, is modeled by the function $f(t) = -16t^2 + 96t + 112$, where $t$ is the time, in seconds, after the ball is projected.

State the height of the platform, in feet.

112 feet

State the coordinates of the vertex. Explain what it means in the context of the problem.

(3, 256)

At 3 seconds, the ball is 256 feet in the air.

State the entire interval over which the ball's height is *decreasing*.

Decreasing (3, 7)

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

## Question 36

**36** A ball is projected up into the air from the surface of a platform to the ground below. The height of the ball above the ground, in feet, is modeled by the function $f(t) = -16t^2 + 96t + 112$, where $t$ is the time, in seconds, after the ball is projected.

State the height of the platform, in feet.

112ft

State the coordinates of the vertex. Explain what it means in the context of the problem.

$t = x = \frac{-b}{2a} = \frac{-96}{2 \cdot -16} = \frac{-96}{-32} = 3$

$y = -16 \times 3^2 + 96 \cdot 3 + 112 = 256$

(3, 256)

It takes 3 seconds for the ball to reach it's maximum height, 256ft.

State the entire interval over which the ball's height is *decreasing*.

$3 < t \leq 7$

$0 = -16x^2 + 96x + 112$

$0 = -16(x^2 - 8x - 7)$

$0 = -16(x - 7)(x + 1)$

$x = \{7, -1\}$

$x = 7$

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

**Question 36**

**36** A ball is projected up into the air from the surface of a platform to the ground below. The height of the ball above the ground, in feet, is modeled by the function $f(t) = -16t^2 + 96t + 112$, where $t$ is the time, in seconds, after the ball is projected.

State the height of the platform, in feet.

112 feet

State the coordinates of the vertex. Explain what it means in the context of the problem.

(3, 256)

At 3 seconds the ball reaches a maximum height of 256 feet.

State the entire interval over which the ball's height is *decreasing*.

from 3 to 7 seconds

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

**Question 36**

**36** A ball is projected up into the air from the surface of a platform to the ground below. The height of the ball above the ground, in feet, is modeled by the function $f(t) = -16t^2 + 96t + 112$, where $t$ is the time, in seconds, after the ball is projected.

State the height of the platform, in feet.

the platform is 112 feet

State the coordinates of the vertex. Explain what it means in the context of the problem.

$f(t) = -16t^2 + 96t + 112$

| $t$ | $f(t)$ |
|---|---|
| 0 | 112 |
| 1 | 192 |
| 2 | 240 |
| 3 | 256 |
| 4 | 240 |
| 5 | 192 |
| 6 | 112 |

Vertex: (3, 256).
This is the heighest height the ball will reach off the ground (256 ft) over a certain amount of time (3 seconds)

State the entire interval over which the ball's height is *decreasing*.

$x > 3$

**Score 3:** The student did not state a correct interval.

**Question 36**

**36** A ball is projected up into the air from the surface of a platform to the ground below. The height of the ball above the ground, in feet, is modeled by the function $f(t) = -16t^2 + 96t + 112$, where $t$ is the time, in seconds, after the ball is projected.

State the height of the platform, in feet.

2.

State the coordinates of the vertex. Explain what it means in the context of the problem.

(3,256) - vertex

This point means after 3 seconds, the ball will be at it's maximum height of 256 feet.

State the entire interval over which the ball's height is *decreasing*.

**Score 2:** The student correctly stated the coordinates of the vertex and wrote an explanation in the context of the problem, but no further correct work was shown.

**Question 36**

**36** A ball is projected up into the air from the surface of a platform to the ground below. The height of the ball above the ground, in feet, is modeled by the function $f(t) = -16t^2 + 96t + 112$, where $t$ is the time, in seconds, after the ball is projected.

State the height of the platform, in feet.

7 feet

State the coordinates of the vertex. Explain what it means in the context of the problem.

256 feet. All we are looking for is turning point thats you answer (3, 256).

State the entire interval over which the ball's height is *decreasing*.

(2, -1)

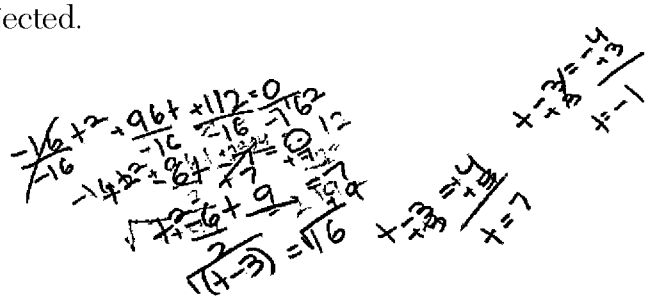
**Score 1:** The student correctly stated the coordinates of the vertex, but no further correct work was shown.

## Question 36

**36** A ball is projected up into the air from the surface of a platform to the ground below. The height of the ball above the ground, in feet, is modeled by the function $f(t) = -16t^2 + 96t + 112$, where $t$ is the time, in seconds, after the ball is projected.

State the height of the platform, in feet.

t = 7
t = -1



State the coordinates of the vertex. Explain what it means in the context of the problem.

turning point of the ball

State the entire interval over which the ball's height is *decreasing*.

**Score 0:** The student gave an incorrect response.

**Question 37**

**37** At a local garden shop, the price of plants includes sales tax.

The cost of 4 large plants and 8 medium plants is \$40. The cost of 5 large plants and 2 medium plants is \$28.

If $l$ is the cost of a large plant and $m$ is the cost of a medium plant, write a system of equations that models this situation.

$4L + 8m = 40$

$5L + 2m = 28$

Could the cost of one large plant be \$5.50 and the cost of one medium plant be \$2.25? Justify your answer.

$27.5 + 4.5 = 28 \rightarrow 32 \neq 28$

Not true

No, it Cannot.

Determine algebraically both the cost of a large plant and the cost of a medium plant.

$4L + 8m = 40$

$4(5L + 2m = 28)$

$L = 4.5$

$m = 2.75$

$-18 + 8m = 40$

$-18 \quad -18$

$8m = 22$

$\frac{8m}{8} = \frac{22}{8}$

$m = 2.75$

$-(4L + 8m = 40)$

$(20L + 8m = 112)$

$\frac{-16L}{-16} = \frac{-72}{-16}$

$L = 4.5$

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

**Question 37**

**37** At a local garden shop, the price of plants includes sales tax.

The cost of 4 large plants and 8 medium plants is $40. The cost of 5 large plants and 2 medium plants is $28.

If $l$ is the cost of a large plant and $m$ is the cost of a medium plant, write a system of equations that models this situation.

$l + m = C$

C = Cost
l = # of large plants
m = # of medium plants

Could the cost of one large plant be $5.50 and the cost of one medium plant be $2.25? Justify your answer.

$4(5.50)+8(2.50)=42$
$5(5.50)+2(2.50)=32.50$
NO that can't be the cost because then you will be getting charged more.

Determine algebraically both the cost of a large plant and the cost of a medium plant.

$l+m=C$
$4l+8m=40$
$5l+2m=28$

$4l+8m=40$
$-20l+8m=112$
$-16l=-72$
$l=\$4.50$

$5l+2m=28$
$11\ 2$

$4(4.5)+8m=40$
$-18+8m=40$
$-18\quad -18$
$8m=22$
$m=\$2.75$

$4.50 + 2.75$
$22.50 + 5.50$
$28.00$

$5(4.50)+2(2.75)=28$
$22.50+5.50=28$
$28=28$
$4(4.50)+8(2.75)=40$
$18+22=40$
$40=40$

**Score 5:** The student made one computational error when substituting in 2.50 for the cost of a medium plant instead of 2.25.

## Question 37

**37** At a local garden shop, the price of plants includes sales tax.

The cost of 4 large plants and 8 medium plants is \$40. The cost of 5 large plants and 2 medium plants is \$28.

If $l$ is the cost of a large plant and $m$ is the cost of a medium plant, write a system of equations that models this situation.

$4l + 8m = 40$

$5l + 2m = 28$

Could the cost of one large plant be \$5.50 and the cost of one medium plant be \$2.25? Justify your answer.

$(4)(5.50) + (8)(2.25) = 40$

$22 + 18 = 40$

$40 = 40$

$5(5.50) + 2(2.25) = 28$

$27.50 + 4.50 = 28$

$32 = 28$

$32 \neq 28$

no the plants could not be equal to those prices

Determine algebraically both the cost of a large plant and the cost of a medium plant.

$5(5.50) + 2(2.25) = 28$

**Score 4:** The student did not solve the system of equations algebraically to determine the cost of a large plant and the cost of a medium plant.

**Question 37**

**37** At a local garden shop, the price of plants includes sales tax.

The cost of 4 large plants and 8 medium plants is $40. The cost of 5 large plants and 2 medium plants is $28.

If $l$ is the cost of a large plant and $m$ is the cost of a medium plant, write a system of equations that models this situation.

$$\begin{cases} 4l + 8m = 40 \\ 5l + 2m = 28 \end{cases}$$

Could the cost of one large plant be $5.50 and the cost of one medium plant be $2.25? Justify your answer.

$4l + 8m = 40$

$4(5.50) + 8(2.25)$

$= 22 + 18$

$40$ Yes!

Determine algebraically both the cost of a large plant and the cost of a medium plant.

$m = 5 - 4l$

**Score 3:** The student wrote a correct system of equations, but a justification indicating a positive response was given based upon substituting in only the first equation.

## Question 37

**37** At a local garden shop, the price of plants includes sales tax.

The cost of 4 large plants and 8 medium plants is $40. The cost of 5 large plants and 2 medium plants is $28.

If $l$ is the cost of a large plant and $m$ is the cost of a medium plant, write a system of equations that models this situation.

Could the cost of one large plant be $5.50 and the cost of one medium plant be $2.25? Justify your answer.

$4(5.50) + 8(2.25)$
$= 22 + 8$
$= 40$

Determine algebraically both the cost of a large plant and the cost of a medium plant.

$5(5.50) + 2(2.25)$
$= 27.50 + 4.50$
$= 32$
$32 \neq 28$
NO!

**Score 2:** The student showed a correct justification, but no further correct work was shown.

## Question 37

**37** At a local garden shop, the price of plants includes sales tax.

The cost of 4 large plants and 8 medium plants is $40. The cost of 5 large plants and 2 medium plants is $28.

If $l$ is the cost of a large plant and $m$ is the cost of a medium plant, write a system of equations that models this situation.

$4x + 8y = 40$

$5x + 2y = 28$

Could the cost of one large plant be $5.50 and the cost of one medium plant be $2.25? Justify your answer.

Determine algebraically both the cost of a large plant and the cost of a medium plant.

**Score 1:** The student wrote an appropriate system of equations, but not in terms of $l$ and $m$.

**Question 37**

**37** At a local garden shop, the price of plants includes sales tax.

The cost of 4 large plants and 8 medium plants is $40. The cost of 5 large plants and 2 medium plants is $28.

If $l$ is the cost of a large plant and $m$ is the cost of a medium plant, write a system of equations that models this situation.

$9l + 10m = \$68$

Could the cost of one large plant be $5.50 and the cost of one medium plant be $2.25? Justify your answer.

No because it does not all add up to the final amount of money.

Determine algebraically both the cost of a large plant and the cost of a medium plant.

$10(1.85) + 9(5.50) = 68$

The cost of a large plant is 5.50

and the cost of a medium plant is 1.85

**Score 0:** The student gave a completely incorrect response.

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

# Regents Examination in Algebra I – v202

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

(Use for the v202 exam only.)

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

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

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

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