

ALGEBRA I (COMMON CORE) PRACTICE EXAM

Pages 2 – 31: Full-length Algebra I (Common Core) Practice Exam,
with graph paper and reference table

Pages 32 – 37: Scoring Key and Rating Guide

Page 38: Item Standards Alignment

Pages 39 – 40: Practice Exam Blueprint

This practice exam was developed with the intention to provide more sample problems aligned to the new Algebra I Common Core standards, while adhering to the blueprint of the new Regents exam as outlined on page 3 of the [Algebra I Educator Guide](#), specifically regarding allocation of points within the conceptual categories and the content emphases, as detailed below:

Conceptual Category	Percent of Regents Exam	Percent of Practice Exam
Number & Quantity	2 – 8	2.33
Algebra	50 – 56	53.49
Functions	32 – 38	37.21
Statistics	5 – 10	6.98

Content Emphases	Percent of Regents Exam	Percent of Practice Exam
Major Clusters	58 – 73	69.77
Supporting Clusters	18 – 30	23.26
Additional Clusters	5 – 17	6.98

Standards that were heavily represented in the three sets of NYSED official sample items ([Spring 2013 Set](#) released in May, [Fall 2013 Set](#) released in December, and the sample items in the NYSED [Graphing Calculator Guidelines](#) released in November) were less represented in this practice exam, for the purpose of providing more exposure to standards for which official NYSED sample items were not released.

Please note that this practice exam was developed by CFN 603 as a resource for teachers. It is *not* an official NYSED sample exam, has not been reviewed by the NYSED, and may not be representative of an actual Algebra I Regents Exam.

Hope you find this resource helpful!

Mike Miller

CFN 603

mmiller25@schools.nyc.gov

Revised 5/6/14

ALGEBRA I (COMMON CORE)

Children First Network 603

PRACTICE REGENTS HIGH SCHOOL EXAMINATION

ALGEBRA I (COMMON CORE)

Practice Exam

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 graphs and drawings, which should be done in pencil. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. 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. For each question, write on the separate answer sheet the numeral preceding the word or expression that best completes the statement or answers the question. [48]

Use this space for
computations.

- 1 At the school bookstore, a pencil costs 25¢ , a notebook costs $\$1.75$, and a piece of graph paper costs 5¢ . Which formula below could be used to determine the total cost c , *in cents*, of purchasing p pencils, n notebooks, and g pieces of graph paper?

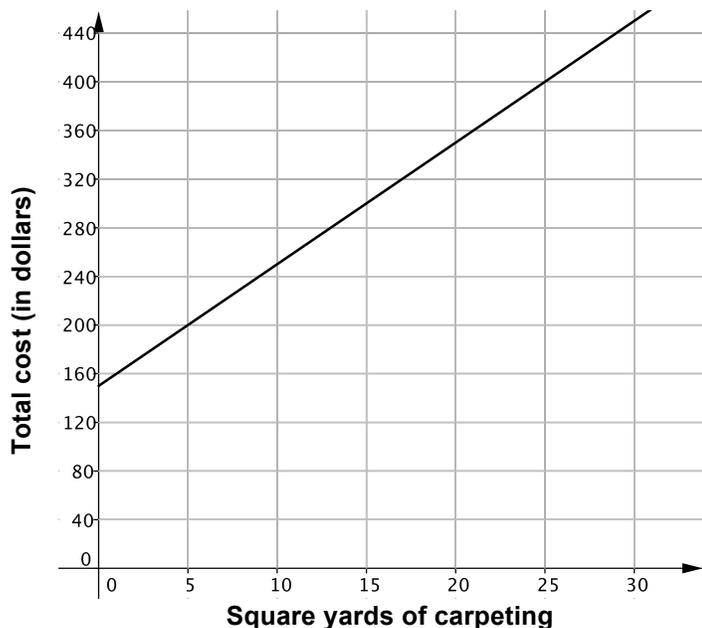
(1) $c = 25p + 1.75n + 5g$

(3) $c = 25p + 175n + 5g$

(2) $c = 0.25p + 1.75n + 0.05g$

(4) $c = 0.25p + 1.75n + 0.5g$

- 2 Eric is hiring a company to install carpeting in his house. The company charges a one-time installation fee plus a certain amount per square yard of carpeting. The graph below shows the relationship between the number of square yards of carpeting and the total cost, in dollars.



The quantity that represents the cost per square yard of carpeting is the

(1) Slope of the graph

(3) Domain of the function

(2) y -intercept of the graph

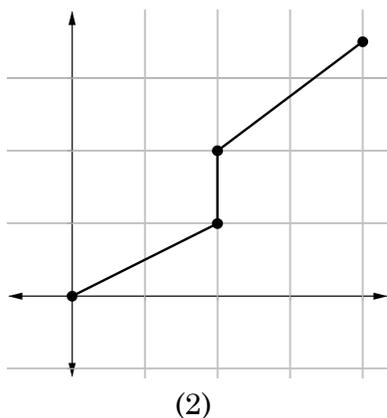
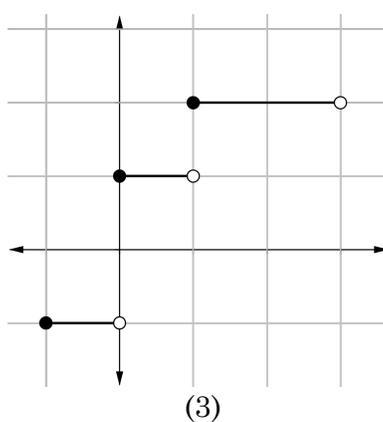
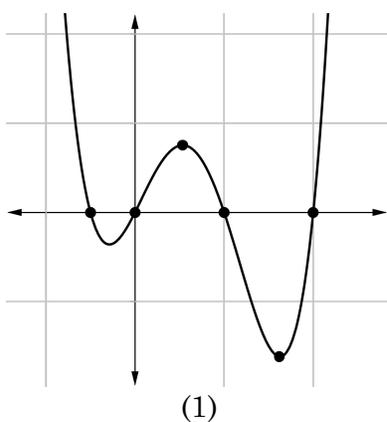
(4) Range of the function

Use this space for
computations.

3 When the quadratic polynomial $5x + 2 - 4x^2$ is written in standard form, which statement is *false*?

- (1) The degree of the polynomial is less than the number of terms.
- (2) The constant term is less than the leading coefficient.
- (3) The value of a is less than the value of b .
- (4) The value of c is less than the value of b .

4 Which diagram does *not* represent a function?



x	$f(x)$
1	1
2	1
3	3
4	3
5	7
6	8

(4)

5 If $f(x) = 2^x + 4$ and $g(x) = x^2 - 4$, the value of $f(5) + g(-3)$ is

- (1) 16
- (2) 23
- (3) 34
- (4) 41

Use this space for
computations.

6 The function $f(x) = x^2 - 5x - 6$, written in correctly factored form, and its zeros are

- (1) $f(x) = (x - 2)(x + 3)$ with zeros of -2 and 3
- (2) $f(x) = (x + 3)(x - 2)$ with zeros of -3 and 2
- (3) $f(x) = (x - 6)(x + 1)$ with zeros of -6 and 1
- (4) $f(x) = (x + 1)(x - 6)$ with zeros of -1 and 6

7 Which operation between two polynomials will *not* always result in a polynomial?

- (1) Addition
- (2) Subtraction
- (3) Multiplication
- (4) Division

8 Judy solved the quadratic equation $x^2 - 16 = 0$ using the following steps:

- Step 1:** $x^2 - 16 = 0$
- Step 2:** $(x - 2)(x + 8) = 0$
- Step 3:** $x - 2 = 0$ or $x + 8 = 0$
- Step 4:** $x = 2$ or $x = -8$

Which statement is *true* about Judy's method?

- (1) Judy made a mistake between Steps 1 and 2.
- (2) Judy made a mistake between Steps 2 and 3.
- (3) Judy made a mistake between Steps 3 and 4.
- (4) Judy solved the equation correctly.

Use this space for
computations.

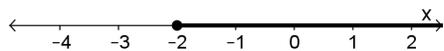
- 9 At a yearly basketball tournament, 64 different teams compete. After each round of the tournament, half of the teams remain, as shown in the accompanying table.

Round, r	Number of teams, t , remaining
0	64
1	32
2	16
3	8

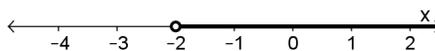
Which equation models the relationship between the round and the number of teams remaining?

- (1) $t = 64(0.5)^r$ (3) $t = 64(0.5)^{r-1}$
 (2) $t = 64(2)^r$ (4) $t = 64(2)^{r-1}$

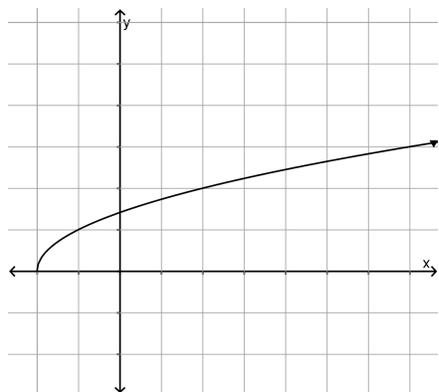
- 10 Which diagram represents the set of all solutions of the equation $y = \sqrt{x+2}$?



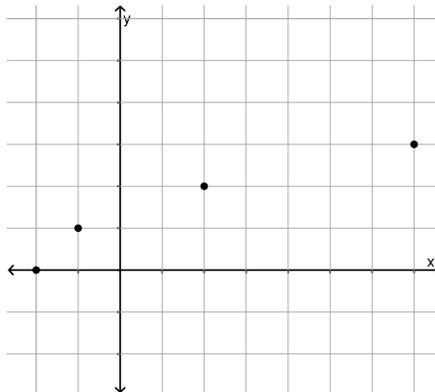
(1)



(3)



(2)



(4)

Use this space for
computations.

- 11 Four students in Ms. Smith's Algebra I class rewrote the expression $x^3 + 4x^2 - 12x$ in four different ways, as shown below.

Student	Rewritten Expression
Jose	$x(x^2 + 4x - 12)$
Maria	$(x^2 + 6x)(x - 2)$
Dante	$(x^2 - 2)(x + 6x)$
Alex	$x(x + 6)(x - 2)$

Which student's rewritten expression is *not* equivalent to the original expression?

- (1) Jose
(2) Maria
(3) Dante
(4) Alex

- 12 Two terms from a sequence are shown in the table below:

n	a_n
1	2
2	4

Which formula does *not* generate these terms?

- (1) $a_n = 2n$
(2) $a_n = 2(n - 1) + 2$
(3) $a_n = 2^n$
(4) $a_n = 2^{n-1} + 2$

- 13 The volume of a cone can be calculated using the formula $V = \frac{1}{3}\pi r^2 h$. Which expression can be used to represent the height, h ?

- (1) $\frac{3V^2}{\pi r}$
(2) $\frac{3V}{\pi r^2}$
(3) $\frac{V}{3\pi r^2}$
(4) $\frac{\sqrt{V}}{3\pi r}$

Use this space for
computations.

14 If John solved the equation $x^2 - 10x + 8 = 0$ by completing the square, one of the steps in his process would be

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

(3) $(x + 4)^2 = 10x$

(2) $(x - 5)^2 = 17$

(4) $(x + 4)^2 = 10x + 16$

15 Tom deposited \$100 into a bank, and the amount in his bank account increases by 5% each year. Christine deposited \$100 into a different bank, and the amount in her bank account increases by \$5 each year. Which statement is *true* about the amounts in Tom's and Christine's bank accounts?

(1) The amount in Tom's bank account can be modeled by an exponential function and the amount in Christine's bank account can be modeled by a linear function.

(2) The amount in Tom's bank account can be modeled by a linear function and the amount in Christine's bank account can be modeled by an exponential function.

(3) The amounts in both bank accounts can both be modeled by exponential functions.

(4) The amounts in both bank accounts can both be modeled by linear functions.

16 Rashawn recently spent \$100 to open a store selling tee-shirts. At his business, he purchases plain tee-shirts for \$11 each, prints graphics on them, and then sells them for \$26 each. What is the *minimum* number of tee-shirts that Rashawn would need to sell in order to make a profit (total income minus total expenses) of *at least* \$400?

(1) 26

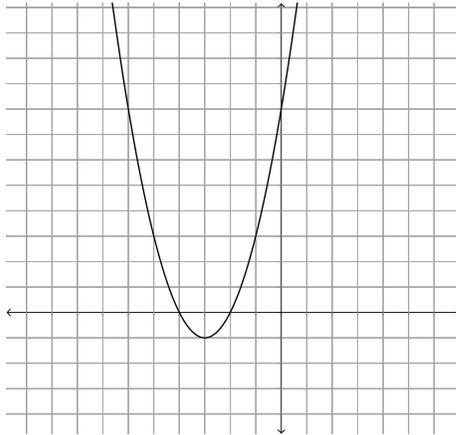
(3) 33

(2) 27

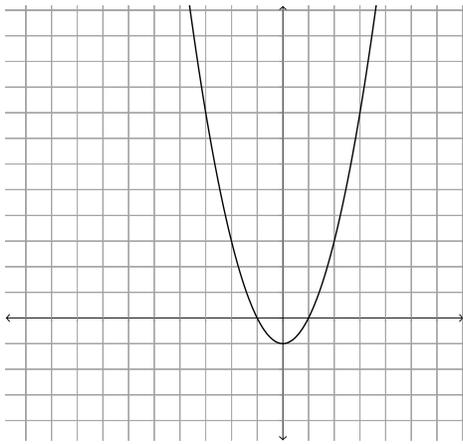
(4) 34

Use this space for computations.

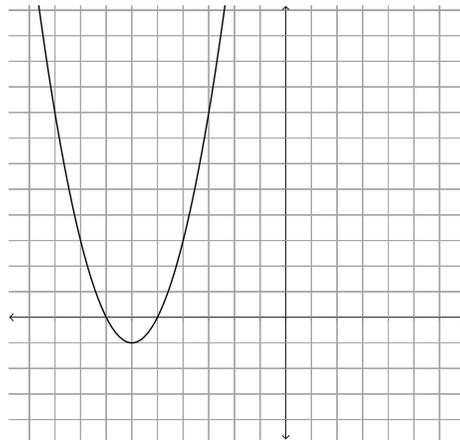
17 The graph below is of the function $f(x)$.



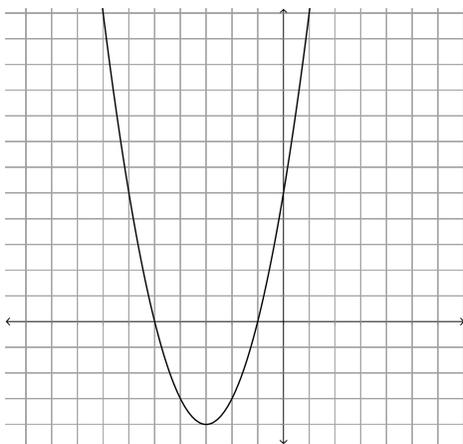
If $g(x) = f(x + 3)$, which graph represents the graph of $y = g(x)$?



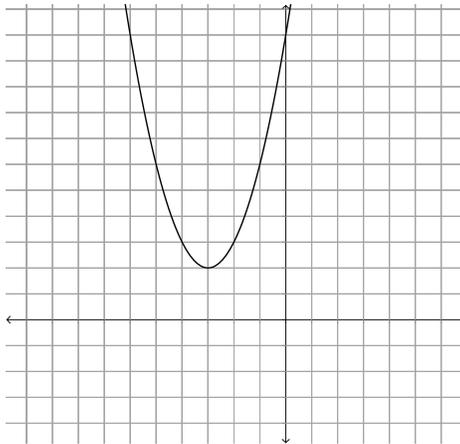
(1)



(3)



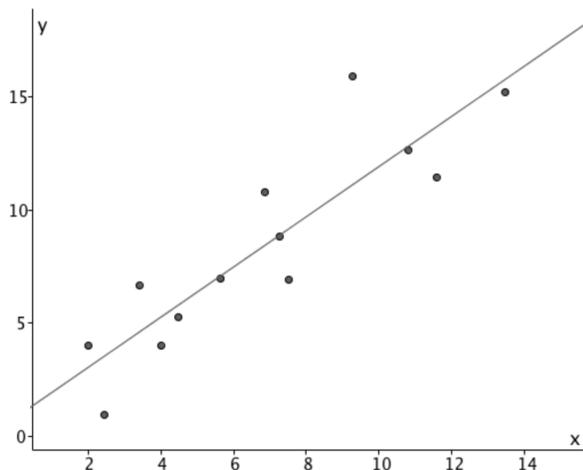
(2)



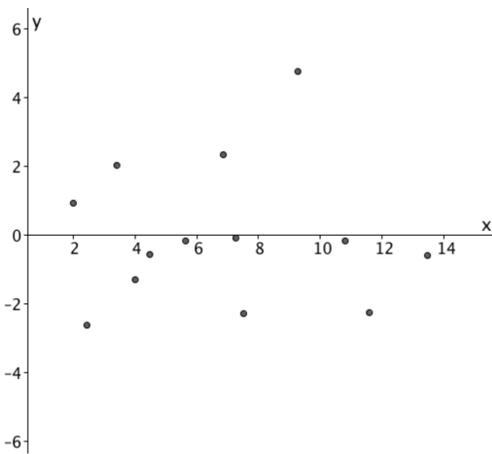
(4)

Use this space for
computations.

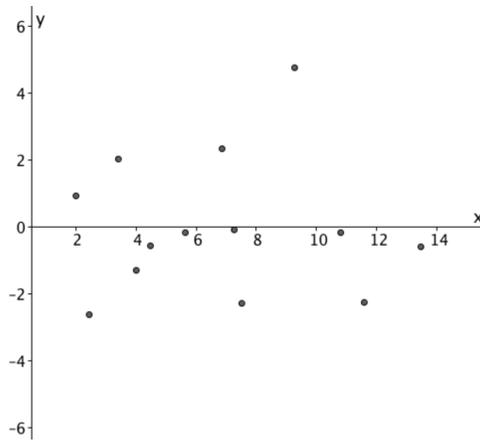
18 A scatter plot was constructed and a linear regression curve was drawn on the graph below.



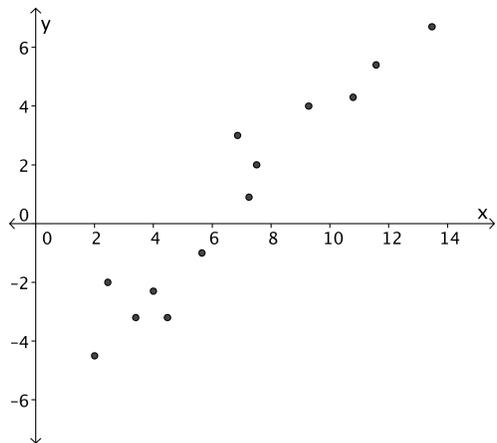
Which residual plot and correlation coefficient best model the regression curve's fit to the data?



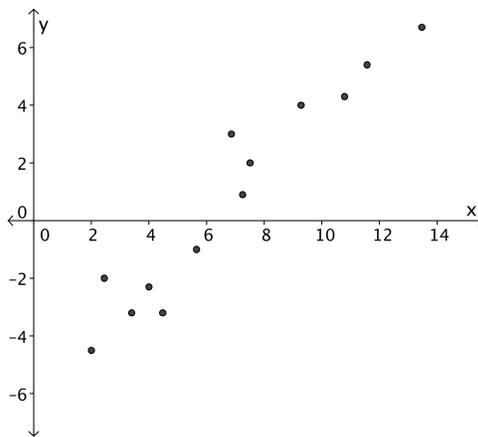
$r = -0.95$
(1)



$r = 0.89$
(3)



$r = -0.95$
(2)



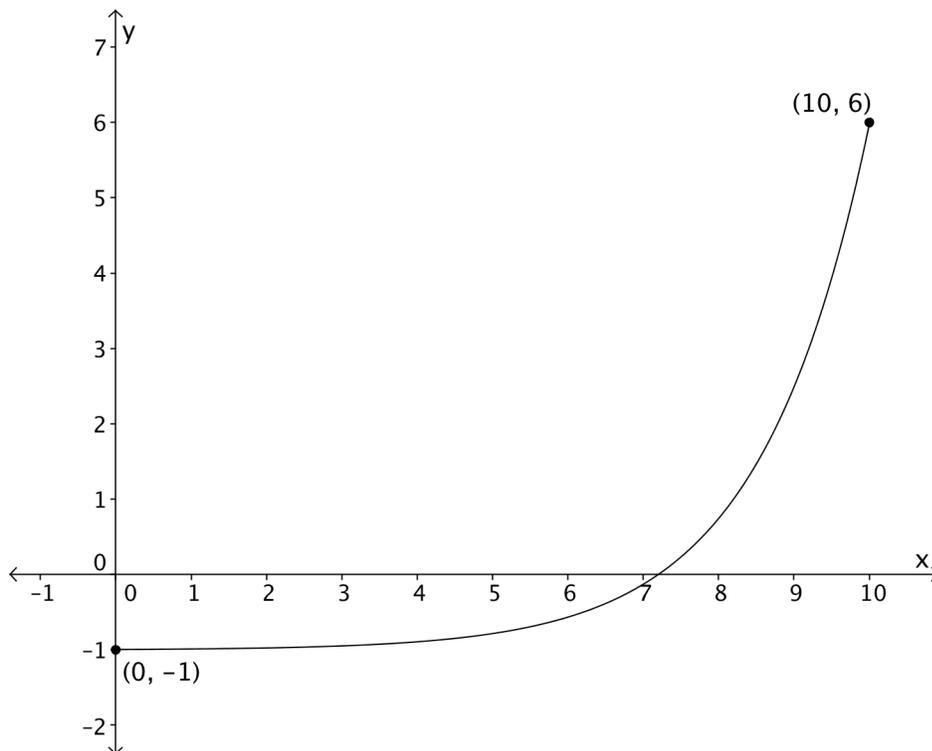
$r = 0.89$
(4)

Use this space for
computations.

19 A function, $m(x)$, is defined by the equation

$$m(x) = \begin{cases} 2x & \text{if } 0 \leq x \leq 6 \\ x-4 & \text{if } 6 < x \leq 10 \end{cases}$$

The graph of another function, $p(x)$, is shown below.



The following statements about $m(x)$ and $p(x)$ are true *except*

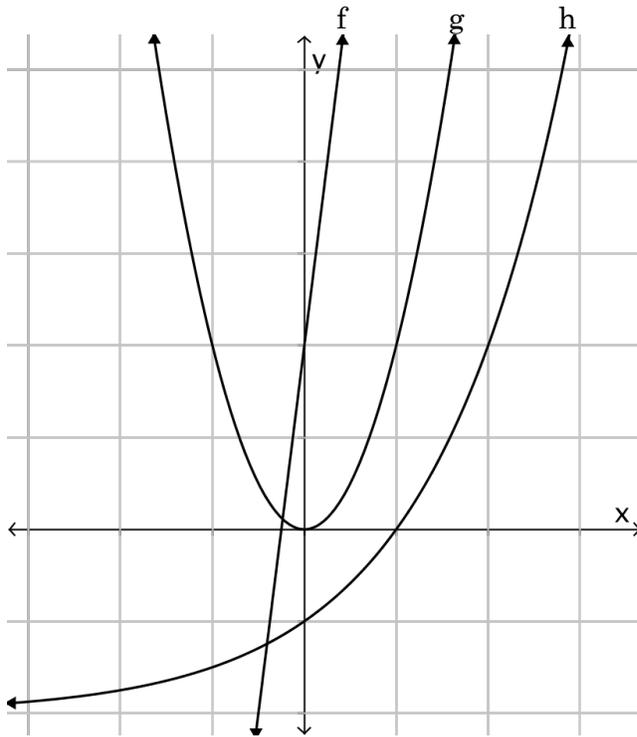
- (1) Both functions have the same domain.
- (2) Both functions have a maximum value of 6.
- (3) Both functions are increasing on the interval $8 \leq x \leq 10$.
- (4) Both functions have one x -intercept.

20 If $f(x) = -x + 5$ and $g(x) = x^2$, what is the solution set of the equation $f(x) = g(x)$, rounded to the nearest tenth?

- | | |
|---------------------|-----------------------------------|
| (1) $\{1.8, -2.8\}$ | (3) $\{(1.8, 3.2), (-2.8, 7.8)\}$ |
| (2) $\{1.8\}$ | (4) $\{(1.8, 3.2)\}$ |

Use this space for
computations.

- 21 Three functions, $f(x) = 8x + 2$, $g(x) = 2x^2$, and $h(x) = 2^x - 2$ are graphed below on the same coordinate plane below.



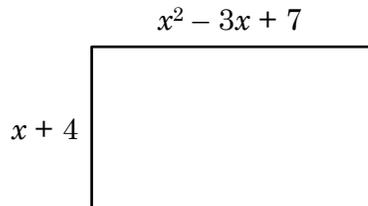
Which statement regarding $f(x)$, $g(x)$, and $h(x)$ is *true*?

- (1) $f(x) > g(x)$ for all $x > 0$.
 - (2) $g(x) > h(x)$ for all $x > 0$.
 - (3) $h(x)$ eventually exceeds $g(x)$ but not $f(x)$.
 - (4) $h(x)$ eventually exceeds both $f(x)$ and $g(x)$.
- 22 Nick and Juan are comparing their scores on ten Algebra quizzes and determine that they both have the same mean score. They also discover that the standard deviation for Nick's scores is 17.1, while the standard deviation for Juan's scores is 4.6. Which statement about the two sets of quiz scores *must* be true?
- (1) The median of Juan's scores is lower than the median of Nick's scores.
 - (2) Nick's scores are, on average, 12.5 points higher than Juan's scores.
 - (3) Nick's scores are more spread out than Juan's scores.
 - (4) Nick's highest score is greater than Juan's highest score.

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. 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 A window in the shape of a rectangle, as shown below, has a width of $x + 4$ and a length of $x^2 - 3x + 7$.



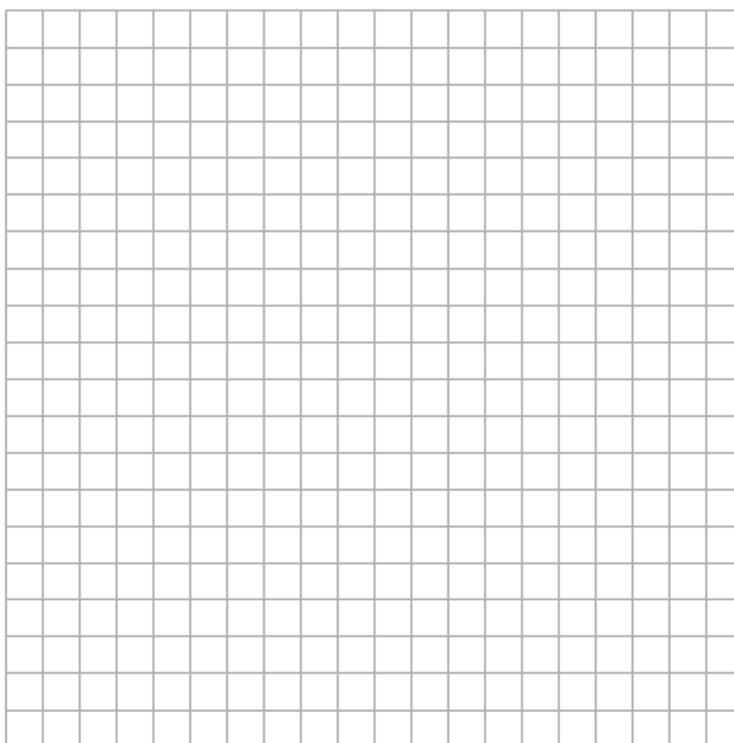
Express the area of the rectangle as single polynomial in simplest form.

26 Determine all zeroes of the function $f(x) = x^3 + 3x^2 - 4x - 12 = (x + 3)(x^2 - 4)$ algebraically.

27 Luis spent \$55 buying songs and movies at an online store that charges \$1.25 for each song and \$2.75 for each movie. He purchased a total of 26 songs and movies combined.

Write a system of equations that represents this situation.

Determine how many songs *and* how many movies Luis purchased, using either an algebraic or graphical approach. [The use of the grid is optional.]



28 Solve the following equation for x , in terms of a and b .

$$ax = 15 + bx$$

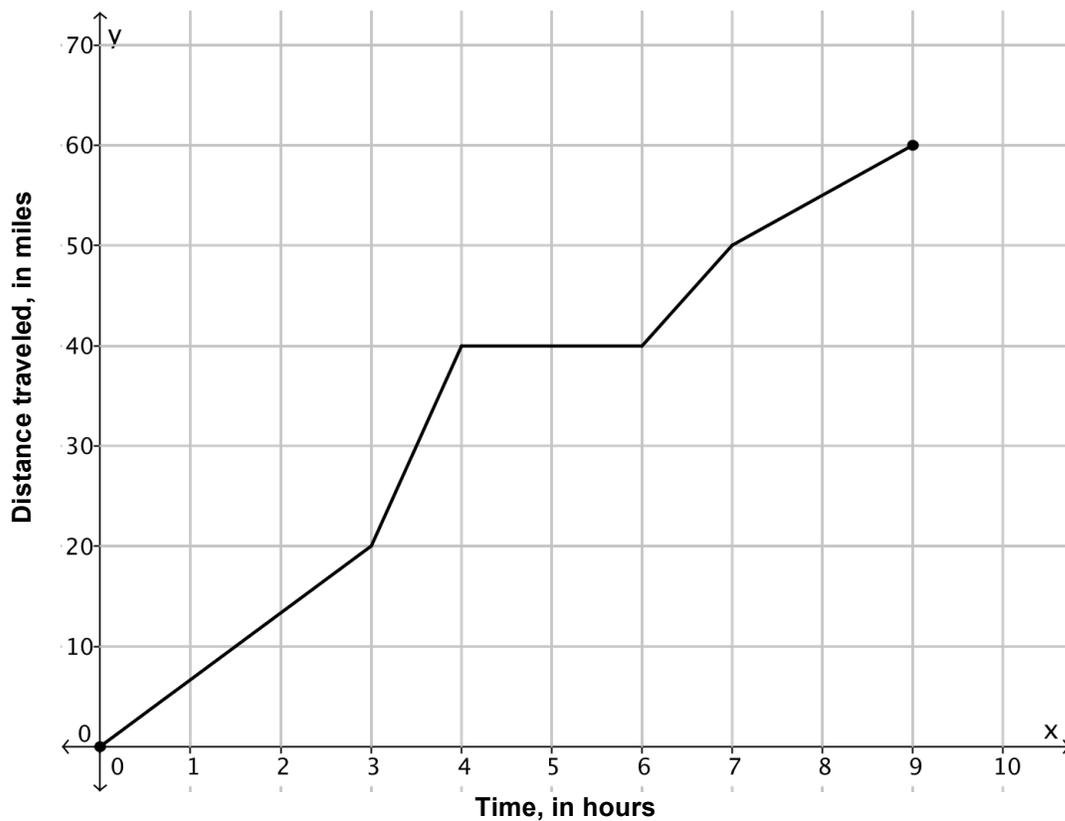
29 Terry solved the equation $x^2 + 10 = 5x$ using the quadratic formula and stated that it has no real solutions. Is Terry correct? Justify your answer.

30 Tyona is performing a biology experiment in which she is studying how the number of bacteria in a dish changes over time. The initial number of bacteria in the dish was 1150, and after several hours of monitoring, Tyona was able to determine that the number of bacteria was doubling at the end of each hour.

Write a function, $b(t)$, that Tyona can use to determine the number of bacteria in the dish after t hours.

Use the function to determine how many bacteria Tyona can expect after 10 hours.

31 Sarah went on a bike ride. The graph below shows the distance, y , in miles, that she had traveled after biking for x hours.



State the domain and range of the function shown in the graph.

State the interval of time during which Sarah was riding the fastest, and explain how you know.

32 Use a method of completing the square in order to rewrite the function $f(x) = x^2 + 5x - 2$ in vertex form, $f(x) = a(x - h)^2 + k$, where (h, k) is the vertex of the parabola.

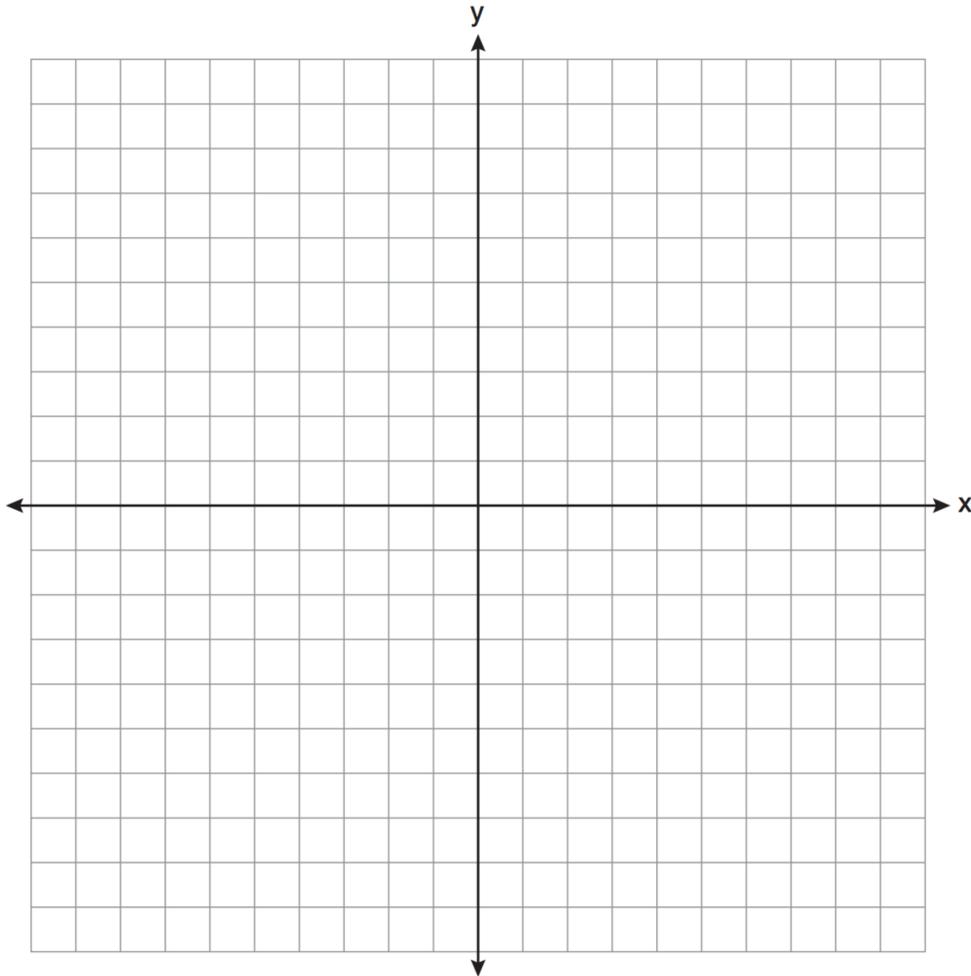
State the exact value of the vertex.

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. 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]

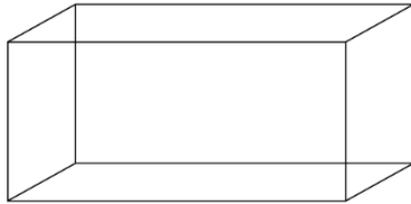
33 On the set of axes below, solve the following system of inequalities graphically.

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



Larry believes that $(4, -1)$ is a solution. Is he correct? Explain your reasoning.

34 Paul purchased a new fish tank, represented by the diagram below.



The height, h , of the tank is 3 feet, and the width, w , is 6 feet longer than the length, l . The volume of the tank ($V = lwh$) is 60 ft^3 .

Write an equation that could be used to calculate the length of the tank.

Determine the exact length of the tank in simplest radical form.

35 Find the first five terms of the recursive sequence defined by the function below.

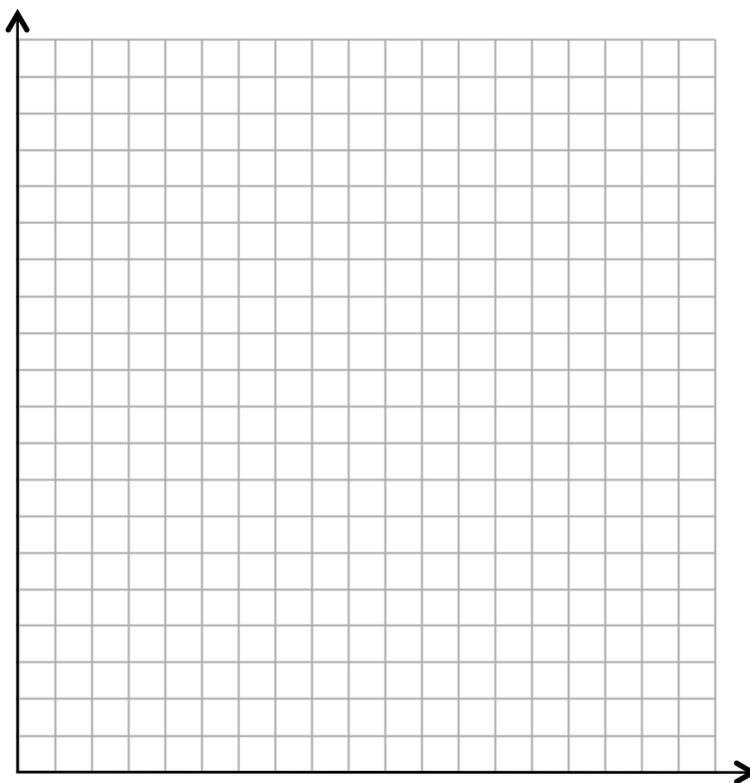
$$f(n) = 2f(n - 1) + 3n, \text{ where } f(1) = -2$$

Is the sequence arithmetic, geometric, or neither? Explain your response.

36 Tom lives in a town 360 miles directly north of New York City, and one Saturday, he takes the train from his town to the city. The train travels at a constant speed, and after 2.5 hours, he sees a sign that states, “New York City: 210 miles.”

Write an equation to represent $d(x)$, the distance Tom is from New York City after x hours.

Graph and label $d(x)$ on the set of axes below.



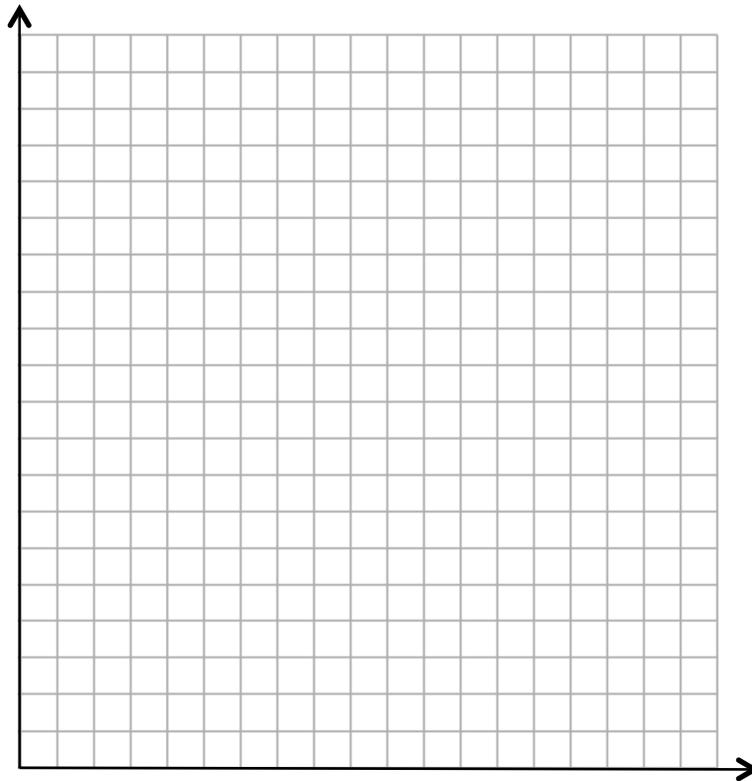
Using either your equation or your graph, determine how many hours it takes the train to get to New York City.

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. A correct numerical answer with no work shown will receive only 1 credit. The answer should be written in pen, except for graphs and drawings, which should be done in pencil. [6]

37 As part of his science fair project, Jordan launched a model rocket from a platform in the middle of a field. The function $h(t) = -16t^2 + 72t + 7$ represents the height, in feet, of the rocket, and t represents the time, in seconds, since the rocket was launched.

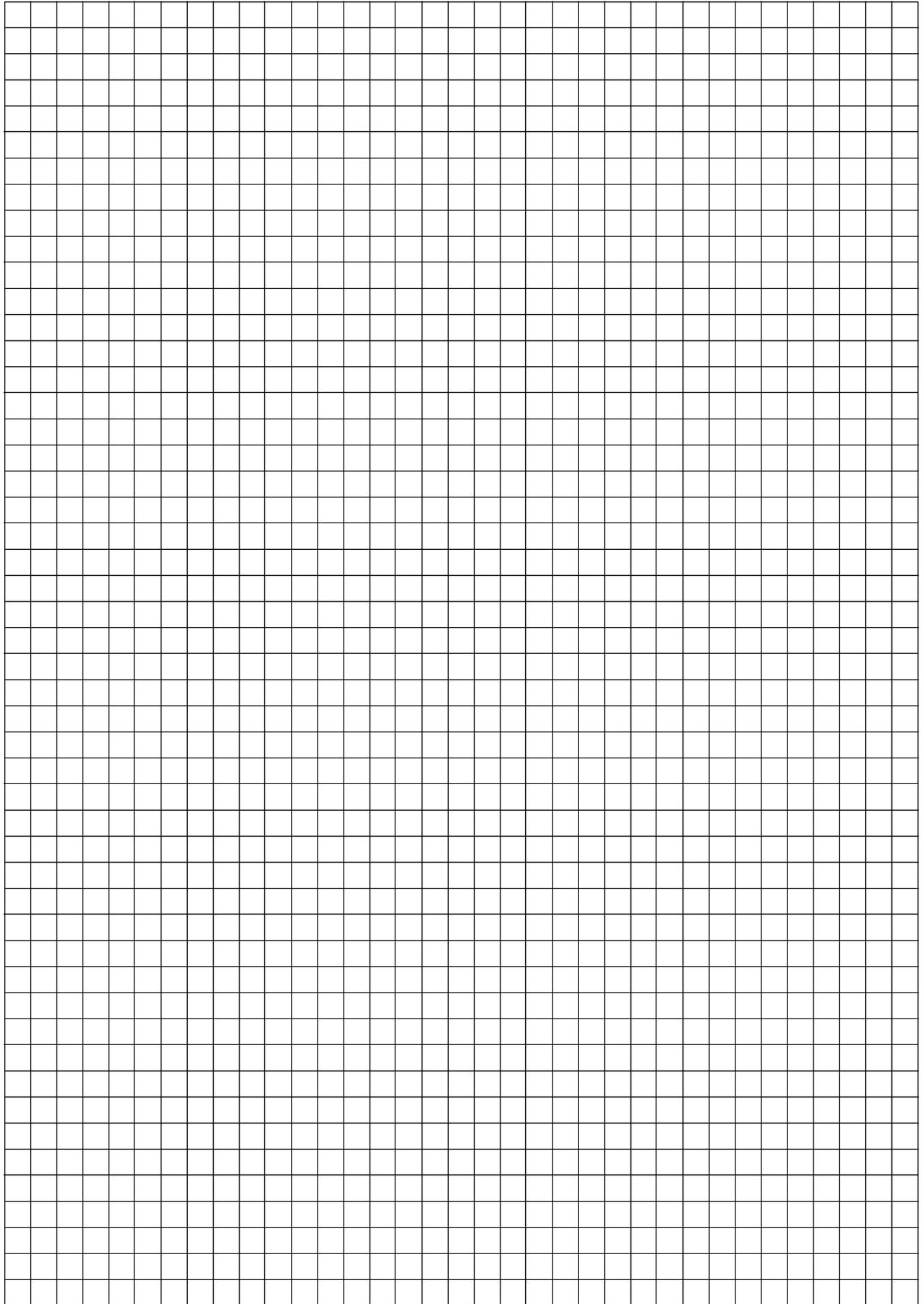
Graph and label $h(t)$ on the grid below from the time the rocket is launched ($t = 0$) until it hits the ground.



Determine the maximum height of the rocket *and* the time it takes the rocket to reach that height. Label the point on your graph that represents when this occurs.

State how long it takes the rocket to hit the ground *to the nearest tenth of a second*. Label the point on your graph that represents when this occurs.

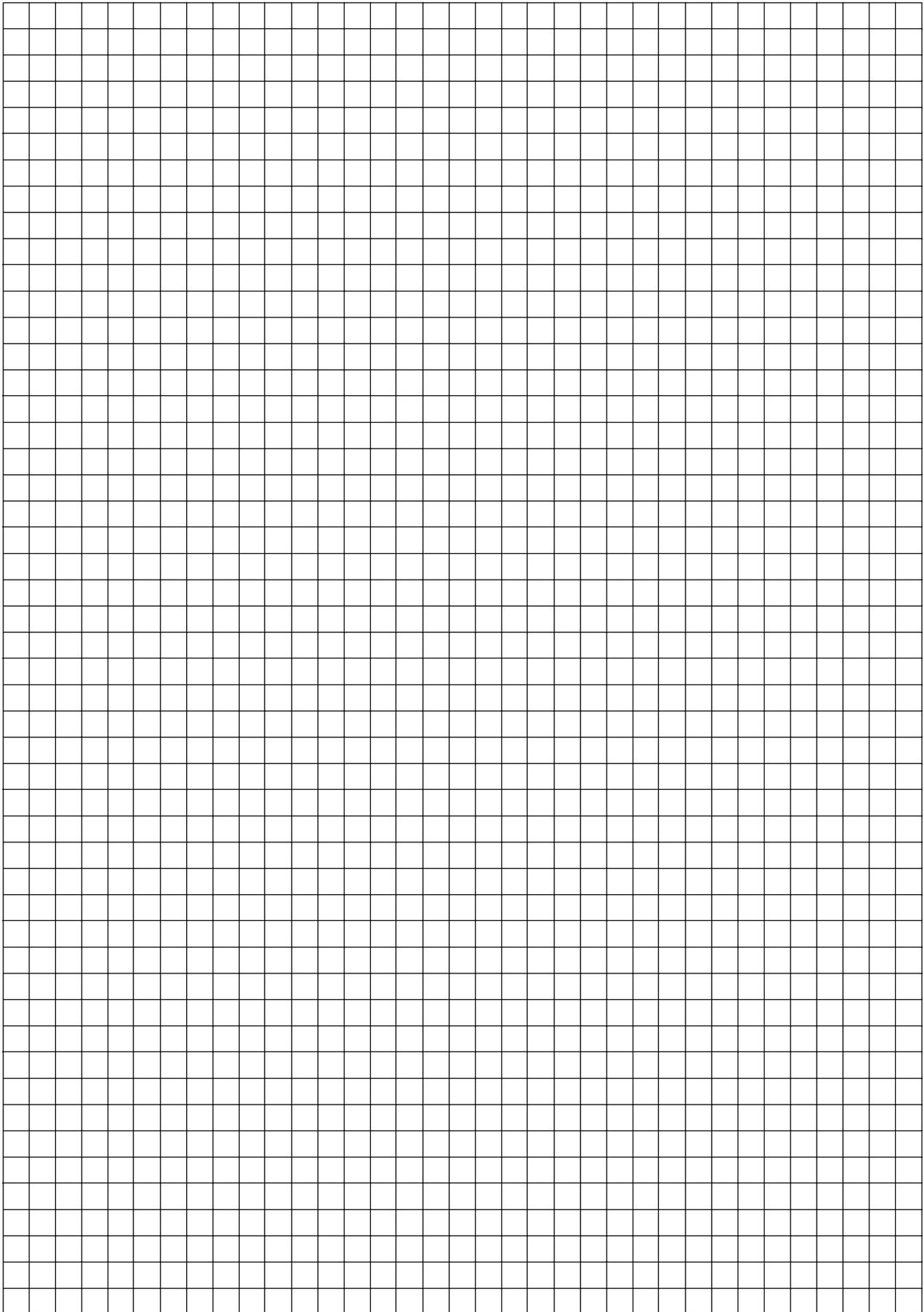
Scrap Graph Paper — This sheet will *not* be scored.



Tear Here

Tear Here

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



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Tear Here



Common Core High School Math Reference Sheet (Algebra I, Geometry, Algebra II)

CONVERSIONS

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 kilograms	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

FORMULAS

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

FOR TEACHERS ONLY

Children First Network 603

PRACTICE REGENTS HIGH SCHOOL EXAMINATION

ALGEBRA I (COMMON CORE)

Practice Exam

SCORING KEY AND RATING GUIDE

Part I

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

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

This scoring key and rating guide was developed by CFN 603 as a resource for teachers. It is *not* an official NYSED scoring key/rating guide, has not been reviewed by the NYSED, and may not be representative of an actual Algebra I Regents Exam scoring key/rating guide.

Part II

25

- [2] $x^3 + x^2 - 5x + 28$, and correct work is shown.
- [1] Appropriate work is shown, but one computational or simplification error is made, such as not combining like terms.
- [1] Appropriate work is shown, but one conceptual error is made, such as multiplying exponents rather than adding exponents when distributing.
- [1] $x^3 + x^2 - 5x + 28$, but no work is shown.
- [0] Completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

26

- [2] -3 , -2 , and 2 , and correct work is shown.
- [1] Appropriate work is shown, but one computational error is made, such as factoring $x^2 - 4$ into $x + 1$ and $x - 4$, but three zeros are stated.
- [1] Appropriate work is shown, but one conceptual error is made, such as obtaining a single zero from the $x^2 - 4$ factor.
- [1] -3 , -2 , and 2 , but no work is shown.
- [0] Completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

27

- [2] A correct system of equations is written, such as $1.25x + 2.75y = 55$ and $x + y = 26$, and the numbers of songs is correctly stated as 11 and the number of movies is correctly stated as 15, with correct algebraic work or correct graphical work shown.
- [1] Appropriate work is shown, but one computational or graphing error is made.
- [1] Appropriate work is shown, but one conceptual error is made, such as stating there are 11 movies and 15 songs.
- [1] A correct system is written and 11 songs and 15 movies stated, but with no work shown, or using a method other than algebraic or graphical, such as guessing and checking.
- [1] A correct system is written but no further correct work is shown.
- [0] Completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

28

- [2] $x = \frac{15}{a-b}$, and correct work is shown.
- [1] Appropriate work is shown, but one computational or conceptual error is made.
- [1] $x(a-b) = 15$, but no further correct work is shown.
- [1] $x = \frac{15}{a-b}$, but no work shown.
- [0] Completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

29

- [2] Yes, and a correct explanation is provided, such as showing that the discriminant is negative and interpreting that result as meaning there are no real solutions.
- [1] A wrong answer is stated, resulting from one computational or conceptual error, but an appropriate explanation is provided.
- [0] Yes, with no work shown or explanation provided.
- [0] Completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

30

- [2] $b(t) = 1150(2)^t$ and 1,177,600, and correct work is shown.
- [1] $b(t) = 1150(2)^t$, but one computational error is made evaluating $b(10)$, such as evaluating $1150(2)(10)$.
- [1] Appropriate work is shown, but one computational or conceptual error is made writing the function, such as $b(t) = 1150(2)t$, but the incorrect function is correctly evaluated for $t = 10$.
- [1] $b(t) = 1150(2)^t$, but no further correct work is shown.
- [0] Completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

31

- [2] Domain: $0 \leq x \leq 9$, or equivalent; range: $0 \leq y \leq 60$, or equivalent; $3 < x < 4$, or equivalent, and a correct explanation is provided, such as stating that the slope (or rate of change) is the steepest (or greatest) during that interval.
- [1] Appropriate work is shown, but one computational error is made.
- [1] Appropriate work is shown, but one conceptual error is made, such as writing the domain as $0 \leq y \leq 60$ and range $0 \leq x \leq 9$, but with a correct interval and explanation provided, or stating only the domain or range, but with a correct interval and explanation provided.
- [1] Correct domain, range, and interval stated, but with no explanation provided for the interval.
- [1] Correct domain and range stated, but no further correct work is shown.
- [1] Correct interval and explanation provided, but either domain or range is stated incorrectly or missing.
- [0] Completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

32

- [2] $f(x) = \left(x + \frac{5}{2}\right)^2 - \frac{33}{4}$, with correct work shown, and $\left(-\frac{5}{2}, -\frac{33}{4}\right)$ identified as the vertex.
- [1] Appropriate work is shown, but one computational error is made, but an appropriate vertex is stated.
- [1] Appropriate work is shown, but one conceptual error is made, but an appropriate vertex is stated.
- [1] $f(x) = \left(x + \frac{5}{2}\right)^2 - \frac{33}{4}$, but no further correct work is shown.
- [1] $\left(-\frac{5}{2}, -\frac{33}{4}\right)$ identified as the vertex, but no further correct work is shown.
- [0] Completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
-

Part III**33**

- [4] System is graphed correctly with solution set identified, and it is stated that that Larry is incorrect with a correct explanation, such as because the point does not satisfy both inequalities or the point is on a boundary line that is not included in the solution set.
- [3] Appropriate work is shown, but one computational or graphing error is made, such as incorrectly solving for y or using a solid line rather than a dashed line, but an appropriate response is provided.
- [3] System is graphed correctly with solution set identified, and it is stated that that Larry is incorrect but with no explanation.
- [2] System is graphed correctly with solution set identified, but no further correct work is shown.
- [2] Appropriate work is shown, but one conceptual error is made, such as graphing the two inequalities correctly but either labeling the intersection point as the solution or not labeling any solution set, but an appropriate response is provided.
- [2] Two graphing or computational error are made, but an appropriate response is provided.
- [1] One inequality is graphed correctly, but no further correct work is shown.
- [0] Completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

34

- [4] $3l(l + 6) = 60$, or equivalent equation, and $-3 + \sqrt{29}$, with correct work shown.
- [3] $3l(l + 6) = 60$, or equivalent equation, and $-3 \pm \sqrt{29}$, with correct work shown.
- [3] $3l(l + 6) = 60$, or equivalent equation, solutions are correctly found, positive solution is correctly identified and negative solution eliminated, but answer is not in simplest radical form.
- [3] $3l(l + 6) = 60$, or equivalent equation, but one computational or simplification error is made, but appropriate solution is stated.
- [2] $3l(l + 6) = 60$, or equivalent equation, solutions are correctly found, but both positive and negative solutions are stated and radical is not in simplest radical form.
- [2] Appropriate work is shown, but two computational or simplification errors are made, but appropriate solution is stated.
- [2] Appropriate work is shown, but one conceptual error is made, but appropriate solution is stated.
- [1] $3l(l + 6) = 60$, or equivalent equation, but no further correct work is shown.
- [1] Appropriate work is shown, but one conceptual error and one computational error are made, but appropriate solution is stated.
- [0] Completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

35

- [4] $-2, 2, 13, 38, \text{ and } 91$, with correct work shown, and sequence correctly identified as “neither” with correct explanation, such as because there is no common difference or common ratio.
- [3] $-2, 2, 13, 38, \text{ and } 91$, with correct work shown, and sequence correctly identified as “neither” but with no explanation.
- [3] Appropriate work is shown, but one computational error is made, but sequence is correctly identified as “neither” with correct explanation.
- [2] $-2, 2, 13, 38, \text{ and } 91$, with correct work shown, but sequence type is either incorrectly identified, or correctly identified but with an incorrect explanation.
- [2] Appropriate work is shown, but one conceptual error is made, but sequence is appropriately identified and explanation provided.
- [2] Appropriate work is shown, but two computational errors are made, but sequence is correctly identified as “neither” with correct explanation.
- [1] Appropriate work is shown, but one computational error and one conceptual error are made.
- [1] $-2, 2, 13, 38, \text{ and } 91$, and “neither,” but with no work or explanation given.
- [0] $-2, 2, 13, 38, \text{ and } 91$, or “neither,” but with no work or explanation given.
- [0] Completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

36

- [4] $d(x) = 360 - 60x$, a correct graph is drawn and labeled, and 6 hours is stated.
 - [3] $d(x) = 360 - 60x$, but one graphing or computational error is made, but an appropriate time is stated.
 - [3] $d(x) = 360 - 60x$, a correct graph is drawn and labeled, but an incorrect time is found or no time is stated.
 - [2] Appropriate work is shown, but one conceptual error is made, such as writing the equation as $d(x) = 210 - 60x$, but an appropriate graph is drawn and time stated.
 - [2] $d(x) = 360 - 60x$, but one graphing or computational error is made and no time is stated.
 - [1] Appropriate work is shown, but one conceptual error and one computational or graphing error are made.
 - [1] $d(x) = 360 - 60x$, but no further correct work is shown.
 - [0] Completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
-

Part IV**37**

- [6] $h(t)$ is correctly graphed and labeled; a maximum height of 88 feet at 2.25 seconds is stated and point (2.25, 88) labeled correctly; and a rounded time of 4.6 seconds to hit the ground is correctly stated and point (4.6, 0) labeled correctly.
- [5] Appropriate work is shown, but one graphing, rounding, or computational error is made, but appropriate maximum height and times are stated and points labeled.
- [5] $h(t)$ is correctly graphed and labeled, and a maximum height of 88 feet at 2.25 seconds is correctly stated, but the time to hit the ground is not stated.
- [5] $h(t)$ is correctly graphed and labeled, and correct maximum and times stated correctly, but one point is not labeled.
- [4] $h(t)$ is correctly graphed and labeled, and correct maximum and times stated correctly, but neither point is labeled.
- [4] Appropriate work is shown, but two graphing, rounding, or computational errors are made, but appropriate maximum height and times are stated and points labeled.
- [4] Appropriate work is shown, but one conceptual error is made, such as stating the rocket hits the ground at 4.5 seconds as a result of multiplying 2.25 seconds by two, but appropriate maximum height and times are stated and points labeled.
- [3] Appropriate work is shown, but one conceptual error and one graphing, rounding, or computational error are made, but appropriate maximum height and times are stated and points labeled.
- [2] Correct graph is drawn and labeled, but no further correct work is shown.
- [2] Maximum height and time to obtain that height are correctly stated, but no further correct work is shown.
- [1] Time to hit the ground is correctly stated, but no further correct work is shown.
- [0] Completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

**CFN 603 Algebra I (Common Core) Practice Exam
Item Standard(s) Alignment**

Problem	Type	Primary Standard	Secondary Standard(s)
1	MC	A-CED.2	N-Q.1
2	MC	N-Q.2	F-LE.5
3	MC	A-SSE.1a	
4	MC	F-IF.1	
5	MC	F-IF.2	
6	MC	A-SSE.3a	
7	MC	A-APR.1	
8	MC	A-REI.1	A-REI.3b
9	MC	A-CED.2	
10	MC	A-REI.10	F-IF.7b
11	MC	A-SSE.2	
12	MC	F-LE.2	
13	MC	A-CED.4	
14	MC	A-REI.4a	
15	MC	F-LE.1	
16	MC	A-CED.3	A-CED.1
17	MC	F-BF.3	
18	MC	S-ID.6b	S-ID.6c
19	MC	F-IF.9	F-IF.4
20	MC	A-REI.11	
21	MC	F-LE.3	
22	MC	S-ID.3	S-ID.2
23	MC	F-IF.6	
24	MC	S-ID.7	
25	CR 2	A-APR.1	
26	CR 2	A-APR.3	
27	CR 2	A-REI.6	
28	CR 2	A-REI.3	
29	CR 2	A-REI.4b	
30	CR 2	F-BF.1a	F-IF.2
31	CR 2	F-IF.5	F-IF.4
32	CR 2	F-IF.8a	A-SSE.3b
33	CR 4	A-REI.12	
34	CR 4	A-CED.1	A-REI.4, A-CED.3
35	CR 4	F-IF.3	
36	CR 4	A-CED.2	F-BF.1
37	CR 6	F-IF.4	F-IF.7a, N-Q.1, A-CED.2

CFN 603 Algebra I (Common Core) Practice Exam Blueprint

Conceptual Category	Domain	Cluster	Cluster Emphasis	Standard	Points on Practice Exam	% of Practice Exam	Total %	Presence of Standard on NYSED Sample items (May, December, and Calculator items)	
Number & Quantity 2% - 8%	Quantities	Reason quantitatively and use units to solve problems.	Supporting	N-Q.1		0.00	2.33		
				N-Q.2	2	2.33			
	The Real Number System	Use properties of rational and irrational numbers.	Additional	N-RN.3		0.00			
Algebra 50% - 56%	Seeing Structure in Expressions	Interpret the structure of expressions.	Major	A-SSE.1	2	2.33	53.49		
		Write expressions in equivalent forms to solve problems.	Supporting	A-SSE.2	2	2.33			
	Arithmetic with Polynomials and Rational Expressions	Perform arithmetic operations on polynomials.	Major	A-APR.1	4	4.65			
		Understand the relationship between zeros and factors of polynomials.	Supporting	A-APR.3	2	2.33		Dec: 5 (3a)	
	Creating Equations		Create equations that describe numbers or relationships.	Major	A-CED.1	4		4.65	May: 4, 5
					A-CED.2	8		9.30	
					A-CED.3	2		2.33	May: 6; Dec: 8, 9
					A-CED.4	2		2.33	
	Reasoning with Equations and Inequalities		Understand solving equations as a process of reasoning and explain the reasoning.	Major	A-REI.1	2		2.33	
					A-REI.3	2		2.33	Dec: 1
			Represent and solve equations and inequalities graphically.		A-REI.4	4		4.65	Dec: 2 (4b), 6
					A-REI.10	2		2.33	
A-REI.11					2	2.33	May: 8		
A-REI.12					4	4.65			
	Solve systems of equations.	Additional	A-REI.5		0.00				
			A-REI.6	2	2.33	Dec: 15; Calc: 1			

Functions 32%-38%	Interpreting Functions	Understand the concept of a function and use function notation.	Major	F-IF.1	2	2.33	37.21	Dec: 4 (7b), 10 (7b), 11 (7b), 12 (7b) May: 1 May: 7; Calc: 4
				F-IF.2	2	2.33		
		F-IF.3		4	4.65			
		F-IF.4		6	6.98			
		F-IF.5		2	2.33			
		F-IF.6		2	2.33			
	Building Functions	Interpret functions that arise in application in terms of the context.	Supporting	F-IF.7a,b		0.00		
				F-IF.8a	2	2.33		
				F-IF.9	2	2.33		
	Linear, Quadratic and Exponential Models	Construct and compare linear, quadratic, and exponential models and solve problems. Interpret expressions for functions in terms of the situation they model.	Supporting	F-BF.1a	2	2.33		
				F-BF.3	2	2.33		
				F-LE.1	2	2.33		
				F-LE.2	2	2.33		
				F-LE.3	2	2.33		
	Statistics 5%-10%	Interpreting Categorical and Quantitative Data	Interpret linear models.	Major	S-ID.7	2		
S-ID.8						0.00		
S-ID.9						0.00		
Summarize, represent and interpret data on two categorical and quantitative variables.			Supporting		S-ID.5		0.00	
					S-ID.6	2	2.33	
Summarize, represent and interpret data on a single count or measurement variable.			Additional		S-ID.1		0.00	
					S-ID.2		0.00	
					S-ID.3	2	2.33	
					Totals			86

Points on Practice Test	% of Practice Test
60	69.77
20	23.26
6	6.98

Major 60 69.77
Supporting 20 23.26
Additional 6 6.98