ALGEBRA

II

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

ALGEBRA II

Wednesday, June 25, 2025 — 9:15 a.m. to 12:15 p.m., only

Student Name ____

School Name ____

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

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

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

This examination has four parts, with a total of 37 questions. You must answer all questions in this examination. Record your answers to the Part I multiple-choice questions on the separate answer sheet. Write your answers to the questions in **Parts II, III,** and **IV** directly in this booklet. All work should be written in pen, except 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 Which expression is equivalent to $2c\sqrt[3]{c}$?

(1) $2c^{\frac{4}{3}}$ (3) $(2c)^{\frac{4}{3}}$

(2) $2c^{\frac{3}{4}}$ (4) $(2c)^{\frac{3}{4}}$

2 Which investigation technique is most often used to determine the cause and effect of a medication?

(1) observational study (3) controlled experiment

(2) survey (4) census

3 What is the solution to $5(2)^{19x} = 50$?

(1) $x = \dfrac{\log(50)}{19}$ (3) $x = \dfrac{\log_2(45)}{19}$

(2) $x = \dfrac{\log_2(10)}{19}$ (4) $x = \dfrac{5}{19}$

Use this space for computations.

4 The function $P(t) = 256{,}485(0.965)^t$ models the decreasing population of a city from 1999 to 2014, where t is the time in years since 1999. Which statement is *not* true?

(1) The function estimated the population was 256,485 in 1999.

(2) The decay rate was 0.35%.

(3) The decay factor is 0.965.

(4) The population declined over 15 years.

5 Four different surveys gathered data about the purchasing behaviors of pet owners. Pet owners from the same population were randomly selected. While collecting data, Chris surveyed 942 pet owners, John surveyed 410, Brooke surveyed 800, and Shane surveyed 100. Whose survey will likely have the *smallest* margin of error?

(1) Brooke

(2) Chris

(3) John

(4) Shane

6 Given i is the imaginary unit and $a = i^3$, $b = i^2$, and $c = i$, which expression is equivalent to $2ax^2 + 3bx - cx$?

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

(2) $-2ix^2 - 3ix$

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

(4) $-8ix^3 - 3x - ix$

Use this space for computations.

7 Which sequence has a common ratio of $\frac{1}{2}$?

(1) $-\frac{1}{4}a, -\frac{1}{8}a, -\frac{1}{16}a, -\frac{1}{32}a, \ldots$

(2) $\frac{1}{32}a, \frac{1}{16}a, \frac{1}{8}a, \frac{1}{4}a, \ldots$

(3) $20a, \frac{39}{2}a, 19a, \frac{37}{2}a, \ldots$

(4) $22a, 22.5a, 23a, 23.5a, \ldots$

8 The result of dividing $2x^3 + 6x^2 + 7x + 2$ by $x + 1$ is

(1) $2x^2 + 4x + 3 - \frac{1}{x+1}$

(2) $2x^2 + 4x + 3 + \frac{5}{x+1}$

(3) $2x^2 + 8x - 15 + \frac{17}{x+1}$

(4) $2x^2 + 8x + 15 - \frac{13}{x+1}$

9 The probabilities that a randomly selected teenager uses social media websites F and I are shown below.

$$P(F) = 0.71$$

$$P(I) = 0.52$$

$$P(F \text{ or } I) = 0.77$$

Given this information, what is $P(F \text{ and } I)$, the probability that a randomly selected teenager uses both websites?

(1) 0.06

(2) 0.19

(3) 0.46

(4) 0.96

Use this space for computations.

10 Consider $f(x) = (x - 2)^2(x + 3)$, and $g(x)$ as strictly defined in the table below.

x	g(x)
−3	0
−2	1
−1	−2
0	−6
1	−1
2	0

Which statement or statements must be true, based on the information given?

I. Both $f(x)$ and $g(x)$ have the same x-intercepts.

II. Both $f(x)$ and $g(x)$ have a y-intercept at $y = -6$.

(1) I, only (3) I and II

(2) II, only (4) neither I nor II

11 Josie examines the graphs of $f(x) = 3^x - 8$ and $g(x) = \frac{1}{x^2 - 4}$. The number of solutions to $f(x) = g(x)$ is

(1) 1 (3) 3

(2) 2 (4) 0

Use this space for computations.

12 Which binomial is a factor of $g^3 + 6g^2 + g - 14$?

(1) $g - 1$

(2) $g - 2$

(3) $g + 1$

(4) $g + 2$

13 Consider the recursively defined sequence below.

$$a_1 = 8$$
$$a_n = 2a_{n-1}$$

Which explicit formula represents the same sequence?

(1) $a_n = 2^n$

(2) $a_n = 2(4^n)$

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

(4) $a_n = 8^n$

14 What is the exact value of $\tan\left(-\frac{5\pi}{6}\right)$?

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

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

(3) $\sqrt{3}$

(4) $-\sqrt{3}$

Use this space for computations.

15 Given $m \neq 0$ and $\left(17^{\frac{1}{m}}\right)^n = 17^2$, what is n in terms of m?

(1) $2m$

(2) $\frac{2}{m}$

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

(4) 2^m

16 In order to qualify for a college tennis scholarship, Joe needs to win 90% of the matches he plays during his senior year of high school. If he has won 8 of the 10 matches that he has played, which equation can be used to determine how many more consecutive matches, x, Joe must win in order for his winning percentage to equal 90%?

(1) $\frac{8 + x}{x} = 0.90$

(2) $\frac{8}{10 + x} = 0.90$

(3) $\frac{8}{10} + x = 0.90$

(4) $\frac{8 + x}{10 + x} = 0.90$

17 Consider the system of equations below.

$$3x + 2y = 1$$
$$2y + z = 2$$
$$2x - 2z = -6$$

What is the value of x?

(1) 1

(2) –1

(3) -4

(4) 4

Use this space for computations.

18 The point (2,–3) lies on the graph of the equation $y = f(x)$. Which point must lie on the graph of the equation $y = f(x - 4) + 1$?

(1) (1,1)
(2) $(-2,-2)$
(3) $(3,-7)$
(4) $(6,-2)$

19 Which statement best describes the end behavior of the function $y = \log(x - 3)$?

(1) As $x \to -\infty$, $y \to -\infty$, and as $x \to \infty$, $y \to \infty$.
(2) As $x \to 3$, $y \to -\infty$, and as $x \to \infty$, $y \to \infty$.
(3) As $x \to -\infty$, $y \to 0$, and as $x \to \infty$, $y \to \infty$.
(4) As $x \to 3$, $y \to 0$, and as $x \to \infty$, $y \to \infty$.

20 The black bear population for a certain area of the Adirondacks can be modeled by the equation $B = 5835.943(1.026)^t$, where t is measured in years since 2010. Kieran would like to rewrite this model in terms of a 5-year growth rate. Kieran's model is best represented by

(1) $B = 5835.943(1.005147)^{\frac{t}{5}}$
(2) $B = 5835.943(1.005147)^{5t}$
(3) $B = 5835.943(1.136938)^{\frac{t}{5}}$
(4) $B = 5835.943(1.136938)^{5t}$

Use this space for computations.

21 Which expression or expressions are equal to 0 for all real numbers?

I. $(x^2 + y^2)^2 + (x^2 + y^2)^2 - 2(x^2 + y^2)^2$

II. $(x^2 + y^2)^2 - (x^2 - y^2)^2$

III. $(x^2 + y^2)^2 - (x^2 - y^2)^2 - (2xy)^2$

(1) I, only
(2) III, only
(3) I and II, only
(4) I and III, only

22 The equation $\frac{1}{x} - \frac{1}{5} = \frac{x}{5}$ has

(1) rational solutions
(2) irrational solutions
(3) imaginary solutions
(4) no solutions

Use this space for computations.

23 For $x \neq \pm 4y$, the expression $\dfrac{x^2 + 3xy - 28y^2}{16y^2 - x^2}$ is equivalent to

(1) $-1 - \dfrac{7}{4}y$

(2) $\dfrac{x - 7y}{4y - x}$

(3) $\dfrac{x + 7y}{x + 4y}$

(4) $\dfrac{-x - 7y}{x + 4y}$

24 Which equation represents a parabola with a focus of $(-2,1)$ and directrix of $y = 5$?

(1) $(x + 2)^2 = -8(y - 3)$

(2) $(x + 2)^2 = 5(y - 1)$

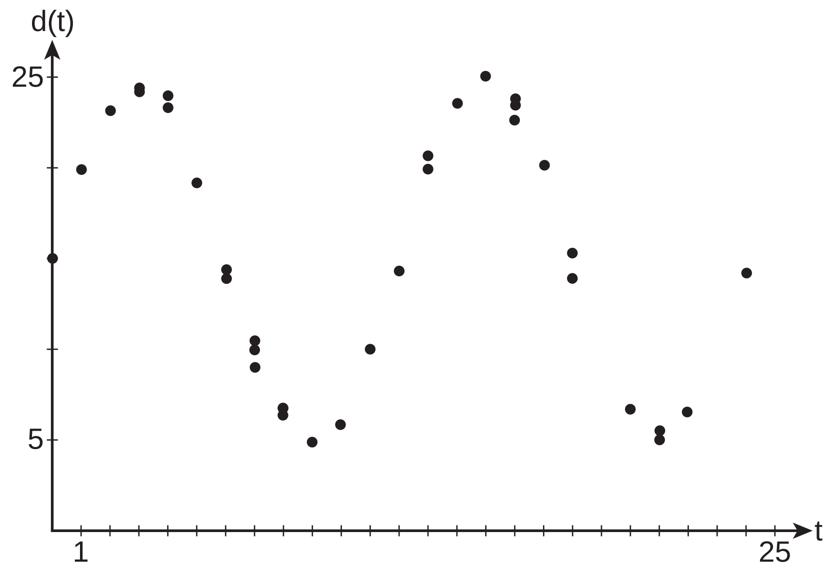
(3) $(x + 2)^2 = -8(y - 1)$

(4) $(x + 2)^2 = 8(y - 3)$

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 Data collected showing the depth of the water in a bay during a 24-hour period are shown in the graph below.



The depth of the water can be modeled with a trigonometric function of the form $d(t) = A\sin\left(\frac{\pi}{6}t\right) + C$. Estimate the value of A, to the *nearest integer*. Justify your answer.

26 Algebraically determine the solution to the equation below.

$$\sqrt{x-2}+x=4$$

27 Factor the expression completely.

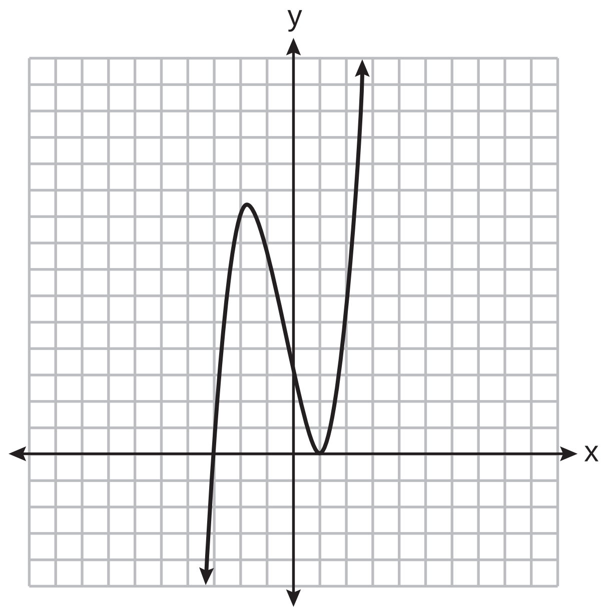
$$(x-1)^2+5(x-1)-6$$

28 The results of a survey of the students at the local high school regarding the topic "What I Do to Relax" are displayed in the table below.

	Read	Listen to Music	Exercise
Female	87	94	21
Male	68	110	18

If a student from this survey is selected at random, determine the exact probability that the person claims to relax by listening to music given that the person is female.

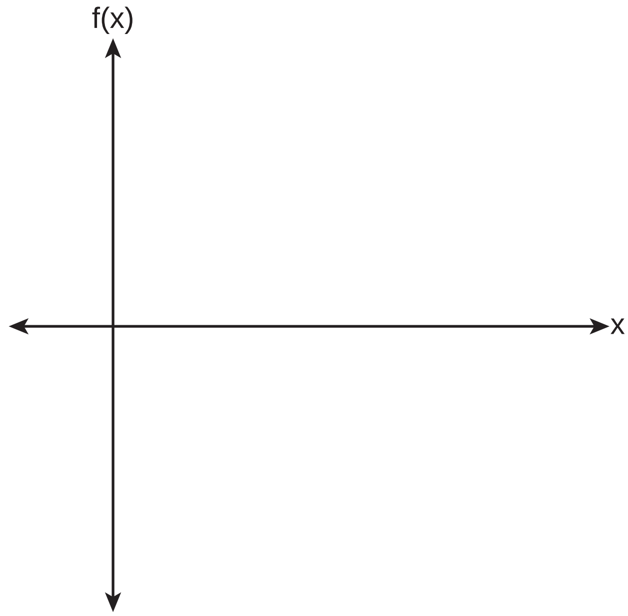
29 The graph of $y = f(x)$ is shown below. The cubic function has a leading coefficient of 1.



Write an equation for $f(x)$.

30 Given $f(x) = \frac{2}{3}x + 6$, write the equation of $f^{-1}(x)$.

31 On the coordinate plane below, sketch *at least one cycle* of the function $f(x) = 4\cos(2x)$. Label the axes with an appropriate scale.



32 In a recent online contest with a large number of randomly selected human players, the computer player won 67% of the time. The game-design company claims that the computer player can beat human players 70% of the time. The company runs a simulation of a large number of games, with the same number of human players, assuming that the computer wins 70% of the time. The simulation is approximately normal with a mean of 0.705 and a standard deviation of 0.045.

Does the contest result provide evidence to contradict the designer's claim? Use the simulation results to justify your answer.

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 Solve algebraically for x: $\frac{2}{x} = \frac{2x + 3}{x - 4}$. Express your answers in simplest $a + bi$ form.

34 A highly selective college reports that the mean score earned by accepted students on the Mathematics Level 2 subject test is 750 with a standard deviation of 20 and that the scores are approximately normally distributed.

Given this information, determine the interval representing the middle 95% of student scores.

To the *nearest whole percent*, determine the percentage of accepted students who scored a 760 or less.

35 For $c(x) = 3x^2 - 4x + 7$ and $d(x) = x - 2$, determine $c(x) \bullet d(x) - [d(x)]^3$ as a polynomial in standard form.

36 Christopher works for a defense contractor and earned \$85,000 his first year. For each additional year he will receive a 2.5% raise.

Write a geometric series formula, C_n, for Christopher's total earnings over n years.

Use this formula to find Christopher's total earnings, to the *nearest hundred dollars*, over his first 10 years of employment.

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]

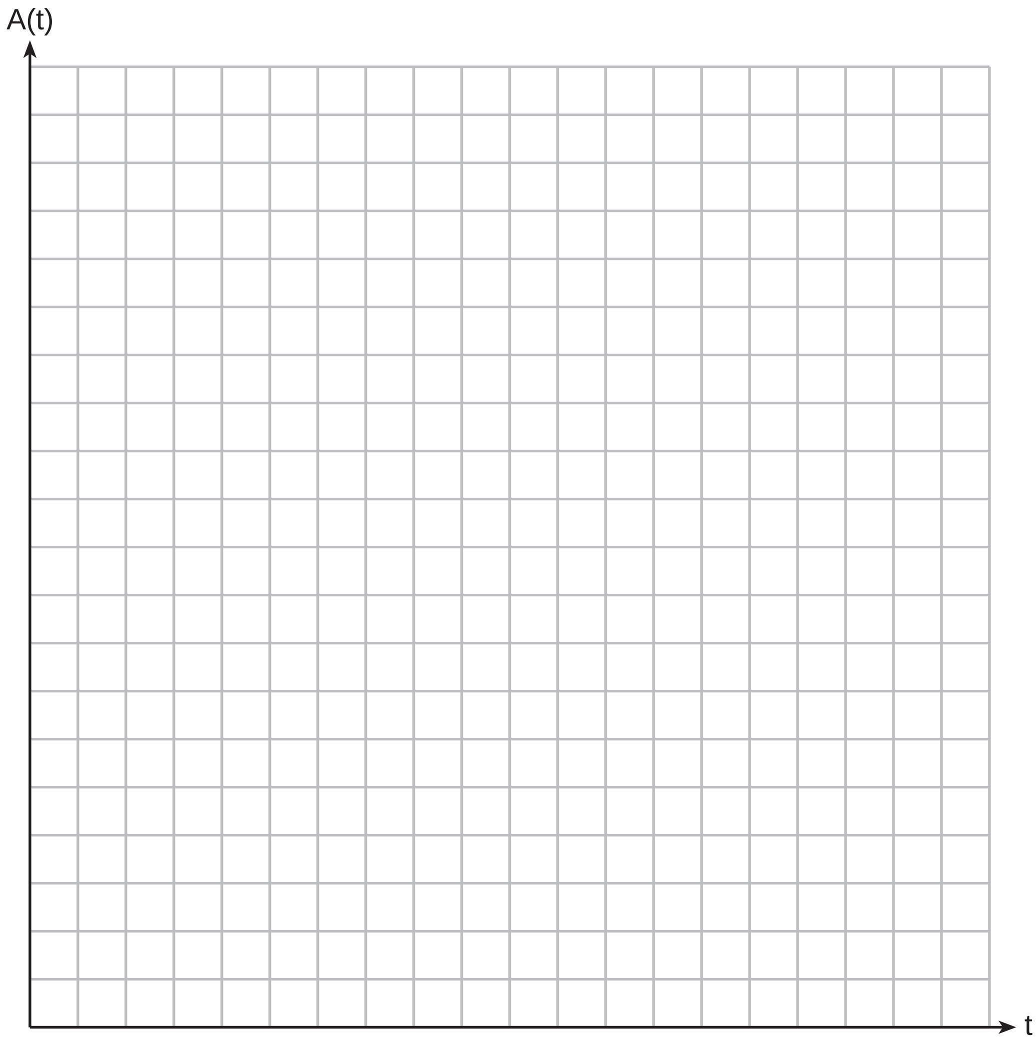
37 Cesium-137 decay can be modeled with the formula $A(t) = A_0e^{kt}$, where $A(t)$ represents the mass remaining in grams after t years and A_0 represents the initial mass. A sample of 500 grams of cesium-137 takes approximately 60.34 years to decay to 125 grams. Use this sample with the given formula to determine the constant k, to the *nearest thousandth*.

Use this value for k to write a function, $A(t)$, that will find the mass of the 500-gram sample remaining after any amount of time, t, in years.

Question 37 is continued on the next page.

Question 37 continued

Graph $A(t)$ on the graph below from $t = 0$ to $t = 150$ years.



Use $A(t)$ to calculate the average rate of change in grams per year, from $t = 0$ to $t = 60$ years, to the *nearest tenth*.

Explain what this value means in the given context.

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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	$S_n = \frac{a_1 - a_1 r^n}{1 - \mathrm{r}}$ where $r \neq 1$
Radians	1 radian $= \frac{180}{\pi}$ degrees
Degrees	1 degree $= \frac{\pi}{180}$ radians
Exponential Growth/Decay	$A = A_0 e^{k(t - t_0)} + B_0$

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

Regents Examination in Algebra II – June 2025

Scoring Key: Part I (Multiple-Choice Questions)

Examination	Date	Question Number	Scoring Key	Question Type	Credit
Algebra II	June '25	**1**	1	MC	2
Algebra II	June '25	**2**	3	MC	2
Algebra II	June '25	**3**	2	MC	2
Algebra II	June '25	**4**	2	MC	2
Algebra II	June '25	**5**	2	MC	2
Algebra II	June '25	**6**	3	MC	2
Algebra II	June '25	**7**	1	MC	2
Algebra II	June '25	**8**	1	MC	2
Algebra II	June '25	**9**	3	MC	2
Algebra II	June '25	**10**	1	MC	2
Algebra II	June '25	**11**	3	MC	2
Algebra II	June '25	**12**	4	MC	2
Algebra II	June '25	**13**	3	MC	2
Algebra II	June '25	**14**	1	MC	2
Algebra II	June '25	**15**	1	MC	2
Algebra II	June '25	**16**	4	MC	2
Algebra II	June '25	**17**	1	MC	2
Algebra II	June '25	**18**	4	MC	2
Algebra II	June '25	**19**	2	MC	2
Algebra II	June '25	**20**	3	MC	2
Algebra II	June '25	**21**	4	MC	2
Algebra II	June '25	**22**	2	MC	2
Algebra II	June '25	**23**	4	MC	2
Algebra II	June '25	**24**	1	MC	2

Regents Examination in Algebra II – June 2025

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

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

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

The chart for determining students' final examination scores for the **June 2025 Regents Examination in Algebra II** will be posted on the Department's web site at: https://www.nysedregents.org/algebratwo/ on the day of the examination. Conversion charts provided for the previous administrations of the Regents Examination in Algebra II 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 II

Wednesday, June 25, 2025 — 9:15 a.m. to 12:15 p.m., only

RATING GUIDE

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

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

Mechanics of Rating

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

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

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

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

Raters should record the student's scores for all questions and the total raw score on the student's separate answer sheet. Then the student's total raw score should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: https://www.nysed.gov/state-assessment/ by Wednesday, June 25, 2025. 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 II 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 II*, 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]** 10, and a correct justification is given.

[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] 10, but no justification is given.

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

(26) **[2]** 3, and correct algebraic work is shown.

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

or

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

or

[1] Appropriate work is shown, but 6 is not rejected.

or

[1] 3, but no work is shown or a method other than algebraic is used.

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

(27) **[2]** $(x + 5)(x - 2)$, and correct work is shown.

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

or

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

or

[1] $(x + 5)(x - 2)$, but no work is shown.

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

(28) **[2]** $\frac{94}{202}$ or equivalent, and correct work is shown.

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

or

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

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

(29) **[2]** $f(x) = (x - 1)^2(x + 3)$ or equivalent equation is written.

[1] One computational or notation error is made.

or

[1] One conceptual error is made.

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

(30) **[2]** $f^{-1}(x) = \frac{3}{2}x - 9$ or an equivalent equation, and correct work is shown.

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

or

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

or

[1] Appropriate work is shown to find $y = \frac{3}{2}x - 9$, but no further correct work is shown.

or

[1] $x = \frac{2}{3}y + 6$ is written, but no further correct work is shown.

or

[1] $f^{-1}(x) = \frac{3}{2}x - 9$, but no work is shown.

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

(31) **[2]** A correct sketch is drawn.

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

or

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

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

(32) **[2]** A negative response is indicated, and a correct justification is given.

[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] No, but the justification is incomplete.

or

[1] An appropriate justification is given, but no is not indicated.

[0] No, but the justification is missing or incorrect.

or

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

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]** $-\frac{1}{4} \pm \frac{3\sqrt{7}}{4}i$ or equivalent simplified form, and correct algebraic work is shown.

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

or

[3] Appropriate work is shown to find $\frac{-1 \pm 3\sqrt{7}\,i}{4}$, but no further correct work is shown.

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

or

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

or

[2] Appropriate work is shown to find $\frac{-1 \pm \sqrt{-63}}{4}$, but no further correct work is shown.

[1] Appropriate work is shown, but one conceptual error and one computational or simplification error are made.

or

[1] Appropriate work is shown to find $2x^2 + x + 8 = 0$, but no further correct work is shown.

or

[1] $-\frac{1}{4} \pm \frac{3\sqrt{7}}{4}i$, but no work is shown.

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

(34) **[4]** (710,790) or equivalent, 69, and correct work is shown.

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

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

or

[2] Correct work is shown to find (710,790) or 69, but no further correct work is shown.

or

[2] (710,790) and 69, but no work is shown.

[1] (710,790) or 69, but no work is shown.

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

(35) **[4]** $2x^3 - 4x^2 + 3x - 6$, and correct work is shown.

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

or

[3] $c(x)d(x) = 3x^3 - 10x^2 + 15x - 14$ and $[d(x)]^3 = x^3 - 6x^2 + 12x - 8$ are stated, but no further correct work is shown.

or

[3] Appropriate work is shown, but the answer is not stated in standard form.

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

or

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

or

[2] Appropriate work is shown to find $[d(x)]^3 = x^3 - 6x^2 + 12x - 8$, but no further correct work is shown.

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

or

[1] Appropriate work is shown to find $c(x)d(x) = 3x^3 - 10x^2 + 15x - 14$, but no further correct work is shown.

or

[1] $2x^3 - 4x^2 + 3x - 6$, but no work is shown.

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

(36) **[4]** $C_n = \dfrac{85{,}000 - 85{,}000(1.025)^n}{1 - 1.025}$ or equivalent, 952,300, and correct work is shown.

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

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

or

[2] $C_n = \dfrac{85{,}000 - 85{,}000(1.025)^n}{1 - 1.025}$, but no further correct work is shown.

or

[2] Appropriate work is shown to find 952,300, but no further correct work is shown.

[1] 952,300, but no work is shown.

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

Part 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]** $k = -0.023$, $A(t) = 500e^{-0.023t}$, a correct graph is drawn, -6.2, and a correct explanation is written.

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

or

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

or

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

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

[3] Appropriate work is shown, but three or more computational, graphing or rounding errors are made.

or

[3] Appropriate work is shown to find $k = -0.023$ and $A(t) = 500e^{-0.023t}$, but no further correct work is shown.

[2] Appropriate work is shown to find $k = -0.023$, but no further correct work is shown.

[1] $A(t) = 500e^{-0.023t}$, but no further correct work is shown.

or

[1] $k = -0.023$ or -6.2, but no work is shown.

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

Map to the Learning Standards
Algebra II
June 2025

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

21	Multiple Choice	2	A-APR.C
22	Multiple Choice	2	A-REI.A
23	Multiple Choice	2	A-SSE.A
24	Multiple Choice	2	G-GPE.A
25	Constructed Response	2	F-IF.B
26	Constructed Response	2	A-REI.A
27	Constructed Response	2	A-SSE.A
28	Constructed Response	2	S-CP.A
29	Constructed Response	2	A-APR.B
30	Constructed Response	2	F-BF.B
31	Constructed Response	2	F-IF.C
32	Constructed Response	2	S-IC.A
33	Constructed Response	4	A-REI.B
34	Constructed Response	4	S-ID.A
35	Constructed Response	4	F-BF.A
36	Constructed Response	4	A-SSE.B
37	Constructed Response	6	F-IF.B

The *Chart for Determining the Final Examination Score for the June 2025 Regents Examination in Algebra II* will be posted on the Department's web site at: https://www.nysed.gov/state-assessment/high-school-regents-examinations on the day of the examination. Conversion charts provided for previous administrations of the Regents Examination in Algebra II must NOT be used to determine students' final scores for this administration.

Online Submission of Teacher Evaluations of the Test to the Department

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

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

2. Click Regents Examinations.

3. Complete the required demographic fields.

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

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

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

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

ALGEBRA II

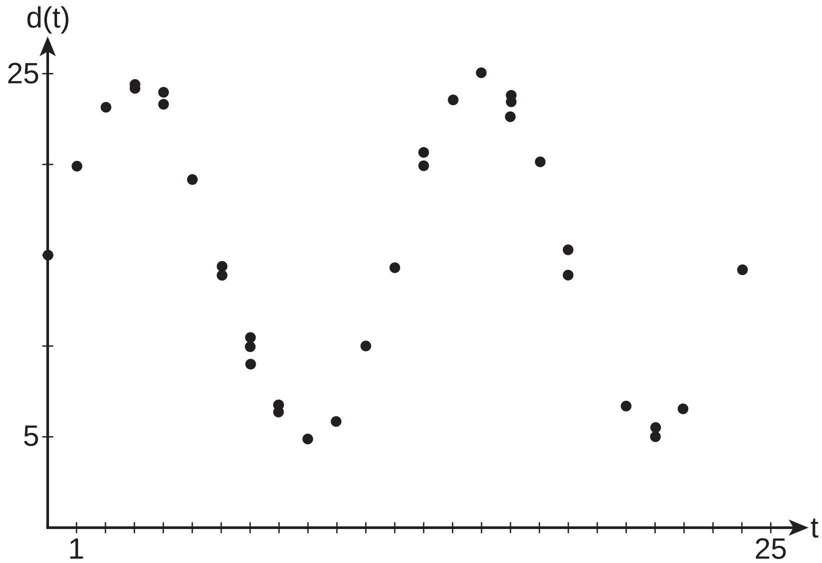
Wednesday, June 25, 2025 — 9:15 a.m. to 12:15 p.m., only

MODEL RESPONSE SET

Table of Contents

Question 25

25 Data collected showing the depth of the water in a bay during a 24-hour period are shown in the graph below.



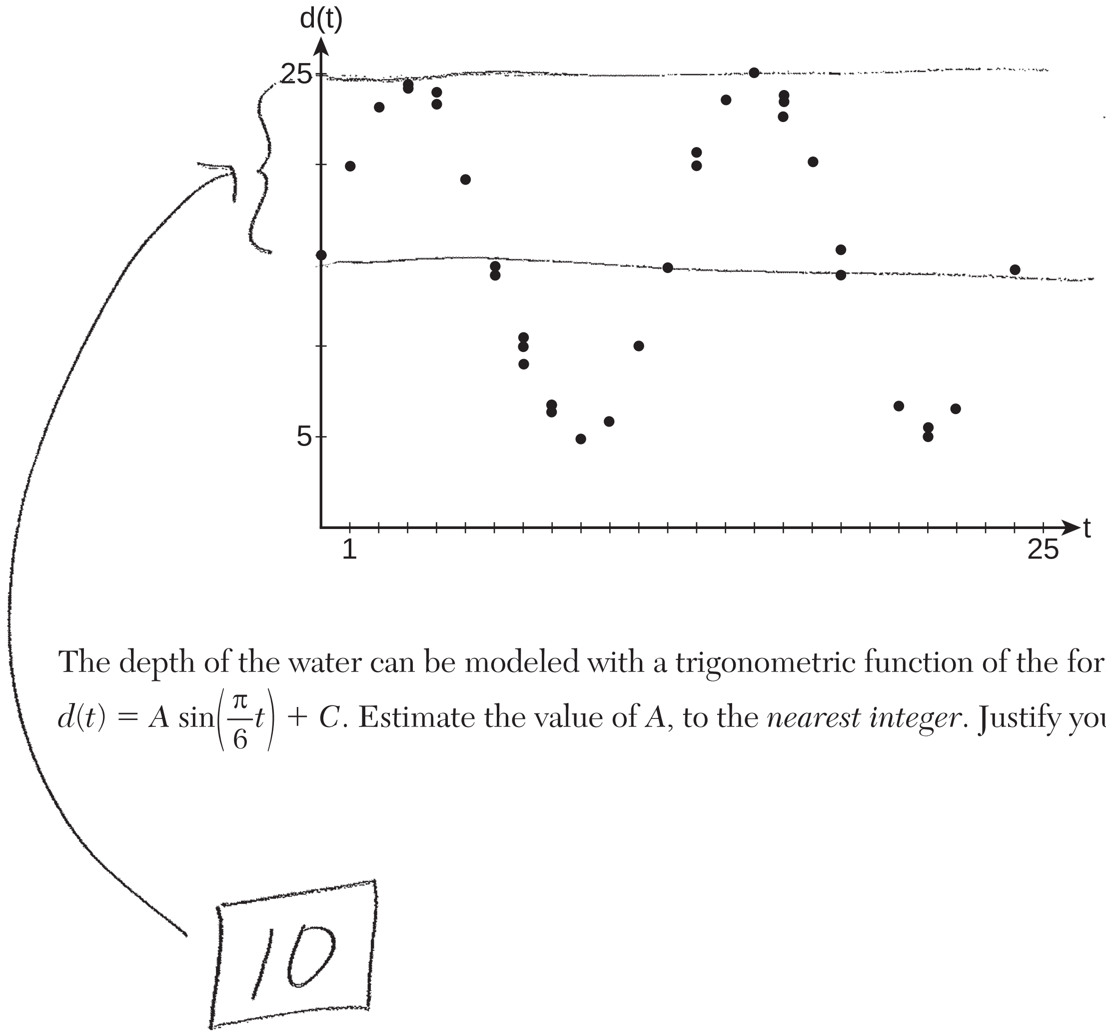
The depth of the water can be modeled with a trigonometric function of the form $d(t) = A\sin\left(\frac{\pi}{6}t\right) + C$. Estimate the value of A, to the *nearest integer*. Justify your answer.

A=10 because c is the midline which is at 15 and from 15 to 25 there is 10 spaces away.

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

Question 25

25 Data collected showing the depth of the water in a bay during a 24-hour period are shown in the graph below.



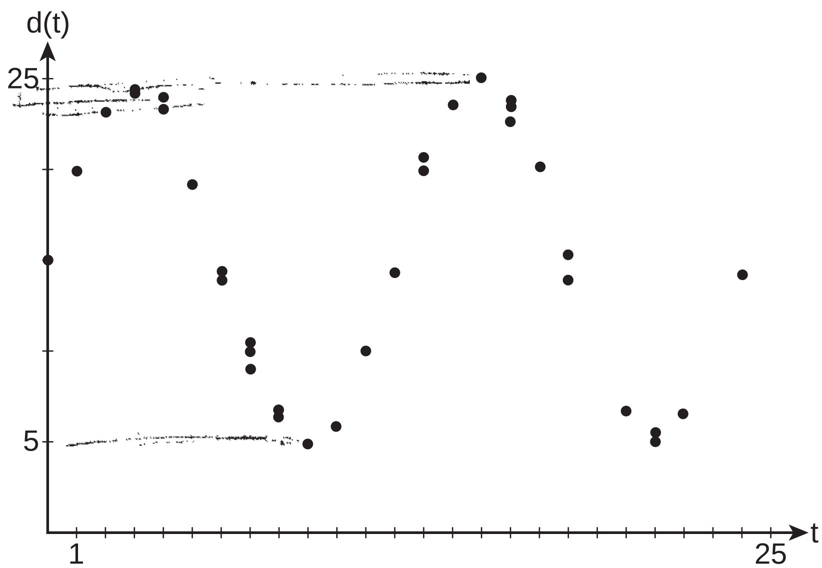
The depth of the water can be modeled with a trigonometric function of the form $d(t) = A\sin\left(\frac{\pi}{6}t\right) + C$. Estimate the value of A, to the *nearest integer*. Justify your answer.

$\boxed{10}$

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

Question 25

25 Data collected showing the depth of the water in a bay during a 24-hour period are shown in the graph below.



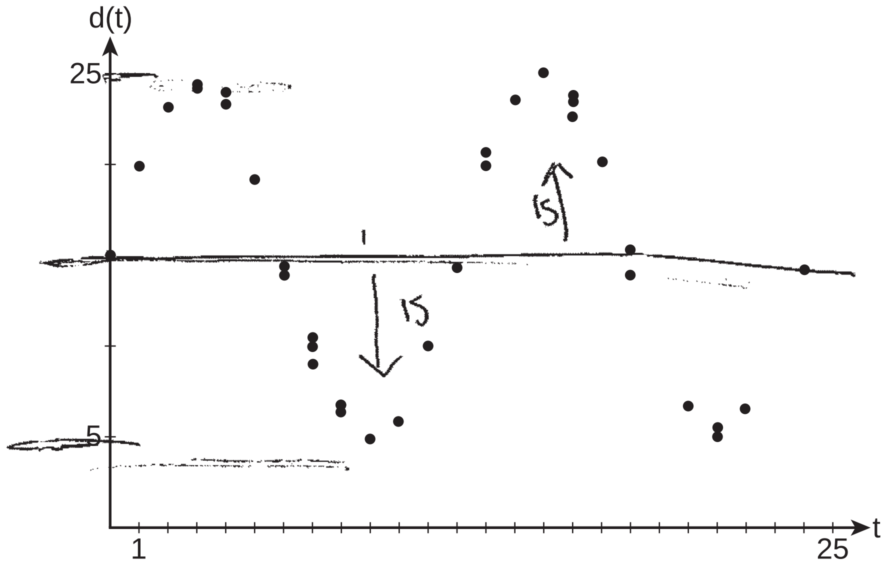
The depth of the water can be modeled with a trigonometric function of the form $d(t) = A \sin\left(\frac{\pi}{6}t\right) + C$. Estimate the value of A, to the *nearest integer*. Justify your answer.

A = 20 because A is the amplitude of the function and looking at the graph, the amplitude can be seen within the minimum value of 5 and maximum value of 25; 25 − 5 = 20.

Score 1: The student did not divide by two when calculating the amplitude.

Question 25

25 Data collected showing the depth of the water in a bay during a 24-hour period are shown in the graph below.



The depth of the water can be modeled with a trigonometric function of the form $d(t) = A\sin\left(\frac{\pi}{6}t\right) + C$. Estimate the value of A, to the *nearest integer*. Justify your answer.

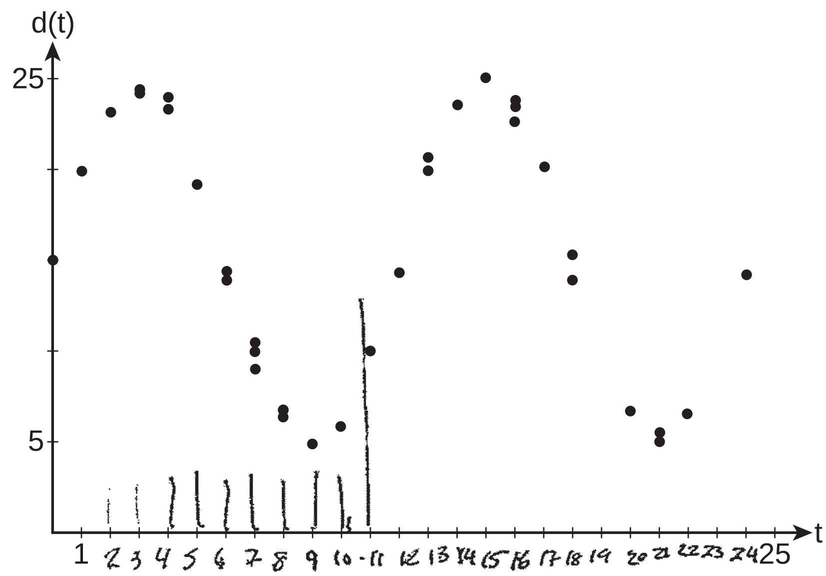
a=amplitude

A=15

Score 1: The student made a computational error.

Question 25

25 Data collected showing the depth of the water in a bay during a 24-hour period are shown in the graph below.



The depth of the water can be modeled with a trigonometric function of the form $d(t) = A\sin\left(\frac{\pi}{6}t\right) + C$. Estimate the value of A, to the *nearest integer*. Justify your answer.

$d(t) = A\sin\left(\frac{\pi}{6}t\right) + C$

$25 = \_\sin\left(\frac{\pi}{6}24\right) +$

$\sin(12.56)$

$25 = \underline{11} \times -2E-13 + C$

$25 = 11\sin\left(\frac{\pi}{6}24\right)25$

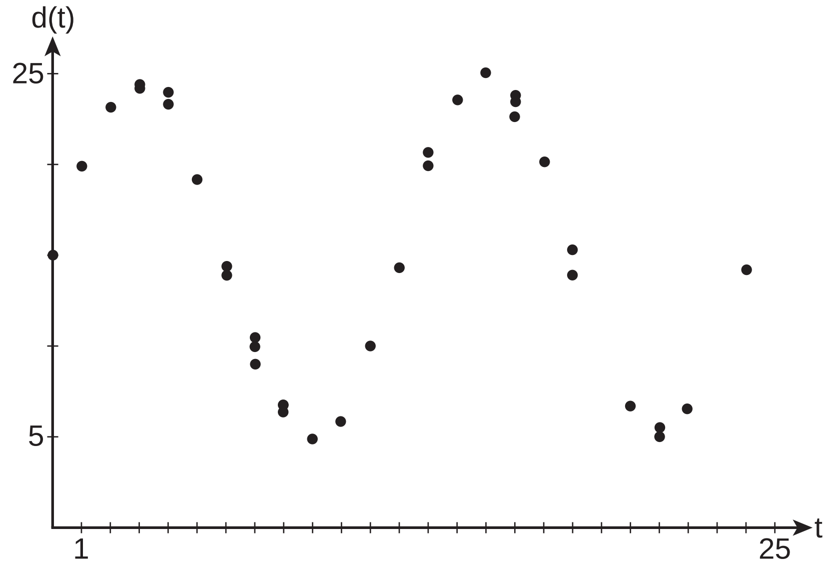
$\downarrow$

$25 = 11 \times -2E-13 + 25$

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

Question 25

25 Data collected showing the depth of the water in a bay during a 24-hour period are shown in the graph below.



The depth of the water can be modeled with a trigonometric function of the form $d(t) = A \sin\left(\frac{\pi}{6}t\right) + C$. Estimate the value of A, to the *nearest integer*. Justify your answer.

A = 25 because that is the max the line will go

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

Question 26

26 Algebraically determine the solution to the equation below.

$$\sqrt{x-2} + x = 4$$

$-x \quad -x$

$\sqrt{x-2}^2 = (-x+4)^2$

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

$x-2 = x^2 - 8x + 16$

$-x+2$

$x^2 - 9x + 18 = 0$

$(x-6)(x-3) = 0$

$\cancel{x=6} \quad x=3$

$\sqrt{6-2} + 6 = 4$

$2 + 6 \neq 4$

$\sqrt{3-2} + 3 = 4$

$1 + 3 = 4$ ✓

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

Question 26

26 Algebraically determine the solution to the equation below.

$$\sqrt{x-2} + x = 4$$

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

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

$x-2 = 16-4x-4x+x^2$

$x-2 = x^2-8x+16$

$x^2-9x+18$

$(x-3)(x-6)$

$\boxed{x=3}$ $x=6$

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

Question 26

26 Algebraically determine the solution to the equation below.

$$\sqrt{x-2} + x = 4$$

$$\left(\sqrt{x-2}\right)^2 = (4-x)^2$$

$$x-2 = 16-8x+x^2$$

$$x^2-9x+18=0$$

$$(x-3)(x-6)$$

$$\boxed{x=\{3,6\}}$$

Score 1: The student did not reject the extraneous root.

Question 26

26 Algebraically determine the solution to the equation below.

$$\sqrt{x-2} + x = 4$$

$-x$

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

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

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

$x - 2 = 16 - 8x + x^2$

$+2 \qquad +2$

$x = 18 - 8x + x^2$

$-x \qquad -x$

$\frac{8 \pm \sqrt{(-8)^2 - 4(1)(18)}}{2(1)}$

$0 = 18 - 9x + x^2$

$\frac{8 \pm \sqrt{-8}}{2}$

$4 \pm \sqrt{-2}$

$8 \pm \sqrt{4}\sqrt{-2}$

$\frac{8 \pm 2\sqrt{-2}}{2}$

$\cancel{4 \pm \sqrt{2}\, i}$

Score 1: The student made a substitution error.

Question 26

26 Algebraically determine the solution to the equation below.

$$\sqrt{x-2} + x = 4$$

$-x \quad -x$

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

$16-4x-4x-x^2$

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

$x-2 = x^2-8x+16$

$-x^2+8x-16 \quad -x^2+8x-16$

$-x^2+9x-18$

No Solution

Score 0: The student did not satisfy the criteria for one or more credits.

Question 26

26 Algebraically determine the solution to the equation below.

$$\sqrt{x-2} + x = 4$$

$$-x \quad -x$$

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

$$(4-x)(4-x)$$

$$x-2 = x^2 - 4x - 4x + 16$$

$$x+2 = x^2 - 16x + 16$$

$$-x-2 \quad - x - 2$$

$$0 = x^2 - 17x + 14$$

answer: $\frac{17+\sqrt{233}}{2}$

Score 0: The student made multiple errors.

Question 27

27 Factor the expression completely.

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

$= x^2 - 2x + 1 + 5x - 5 - 6$

$= x^2 + 3x - 10$

$= (x-2)(x+5)$

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

Question 27

27 Factor the expression completely.

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

$(x-1)(x-1) + 5x - 5 - 6$

$a^2 + 5a - 6$

$(a+6)(a-1)$

$(x-1+6) \quad (x-2)$

$\boxed{(x+5)(x-2)}$

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

Question 27

27 Factor the expression completely.

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

$x^2 - 2x + 1 + 5x - 5 - 6$

$= x^2 - 2x + 5x - 11 + 1$

$= x^2 + 3x - 10$

$= (x+5)(x-2)$

$\boxed{x = -5 \quad x = 2}$

Score 1: The student made an error by solving for x.

Question 27

27 Factor the expression completely.

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

	x	-1
x	x^2	$-x$
-1	$-x$	1

$(x-1)(x-1)+5(x-1)-6$

~~x-1 (x-1)(x~~

$x^2 - 2x + 1 + 5x - 5 - 6$

$\boxed{x^2+3x-10}$

Score 1: The student found a correct quadratic expression but did not factor.

Question 27

27 Factor the expression completely.

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

$(x-1)(x-1)$

$x^2 - x - x + 1$

$x^2 - 2x + 1 + 5x - 11$

$x^2 - 3x + 10$

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

$x = 5$ | $x = 2$

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

Score 0: The student made multiple errors.

Question 27

27 Factor the expression completely.

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

$(x-1)(x-1) + 5(x) - 5(-1) - 6$

$x^2 - 1x - 1x + 1 + 5x - 5 - 6$

$\boxed{x^2 - 2x - 10}$

Score 0: The student did not satisfy the criteria for one or more credits.

Question 28

28 The results of a survey of the students at the local high school regarding the topic "What I Do to Relax" are displayed in the table below.

	Read	Listen to Music	Exercise	
Female	87	94	21	202
Male	68	110	18	196
	155	204	39	398

If a student from this survey is selected at random, determine the exact probability that the person claims to relax by listening to music given that the person is female.

$$P(M|F) = \frac{\frac{94}{398}}{\frac{202}{398}} = \frac{94}{\cancel{398}} \cdot \frac{\cancel{398}}{202} = \frac{94}{202} \boxed{= \frac{47}{101}}$$

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

Question 28

28 The results of a survey of the students at the local high school regarding the topic "What I Do to Relax" are displayed in the table below.

	Read	Listen to Music	Exercise	
Female	87	94	21	202
Male	68	110	18	196

If a student from this survey is selected at random, determine the exact probability that the person claims to relax by listening to music given that the person is female.

$\boxed{94/202}$

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

Question 28

28 The results of a survey of the students at the local high school regarding the topic "What I Do to Relax" are displayed in the table below.

	Read	Listen to Music	Exercise
Female	87	94	21
Male	68	110	18

202

If a student from this survey is selected at random, determine the exact probability that the person claims to relax by listening to music given that the person is female.

$\frac{94}{202} \boxed{= .46535}$

Score 1: The student did not express the final answer as an exact probability.

Question 28

28 The results of a survey of the students at the local high school regarding the topic "What I Do to Relax" are displayed in the table below.

	Read	Listen to Music	Exercise
Female	87	94	21
Male	68	110	18

204

If a student from this survey is selected at random, determine the exact probability that the person claims to relax by listening to music given that the person is female.

$$\frac{94}{204}$$

Score 1: The student calculated the incorrect conditional probability.

Question 28

28 The results of a survey of the students at the local high school regarding the topic "What I Do to Relax" are displayed in the table below.

	Read	Listen to Music	Exercise	
Female	87	94	21	202
Male	68	110	18	196
	155	204	39	

If a student from this survey is selected at random, determine the exact probability that the person claims to relax by listening to music given that the person is female.

204 94

46.1%

Score 0: The student did not satisfy the criteria for one or more credits.

Question 28

28 The results of a survey of the students at the local high school regarding the topic "What I Do to Relax" are displayed in the table below.

	Read	Listen to Music	Exercise
Female	87	94	21
Male	68	110	18

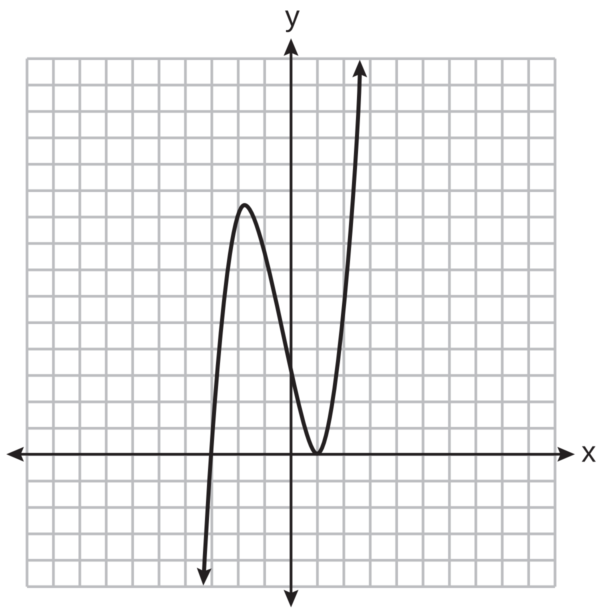
If a student from this survey is selected at random, determine the exact probability that the person claims to relax by listening to music given that the person is female.

$$\frac{94}{204} = \frac{42}{102}$$

Score 0: The student made multiple errors.

Question 29

29 The graph of $y = f(x)$ is shown below. The cubic function has a leading coefficient of 1.



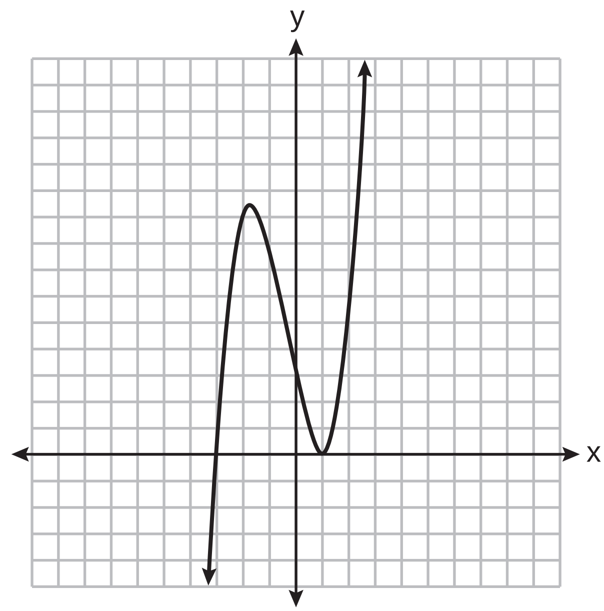
Write an equation for $f(x)$.

$f(x) = (x+3)(x-1)^2$

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

Question 29

29 The graph of $y = f(x)$ is shown below. The cubic function has a leading coefficient of 1.



Write an equation for $f(x)$.

Zeroes: $-3, 1, 1$

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

$y = 1(x+3)(x-1)(x-1)$

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

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

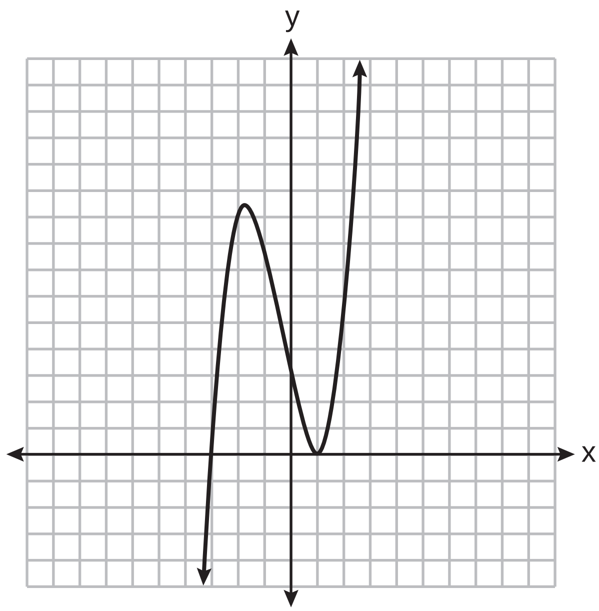
$y = 1\ (x^3 - x^2 + 2x^2 - 2x - 3x + 3)$

$y = x^3 + x^2 - 5x + 3$

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

Question 29

29 The graph of $y = f(x)$ is shown below. The cubic function has a leading coefficient of 1.



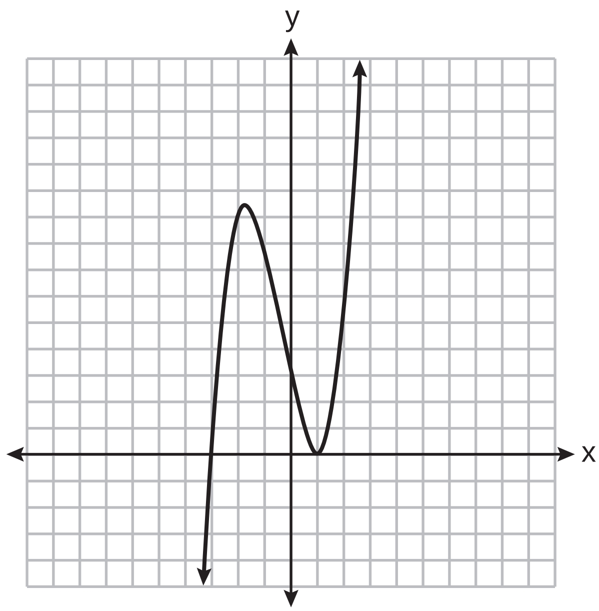
Write an equation for $f(x)$.

$y=(x-1)(x+3)$

Score 1: The student did not recognize the repeated root.

Question 29

29 The graph of $y = f(x)$ is shown below. The cubic function has a leading coefficient of 1.



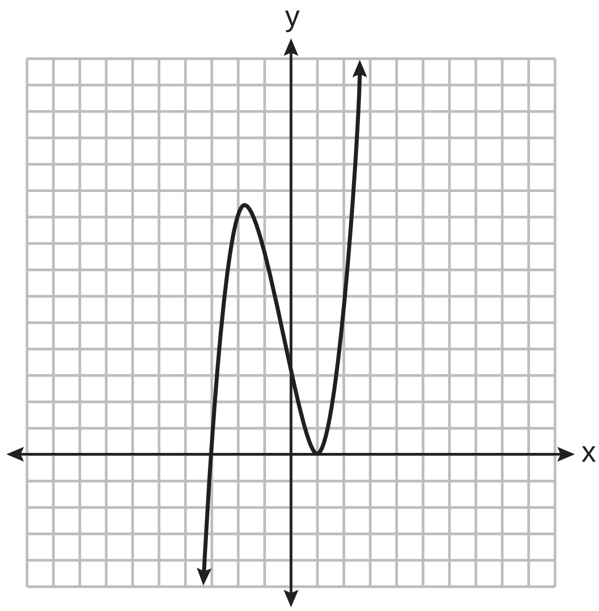
Write an equation for $f(x)$.

$f(x) = (x^3 - 1)$

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

Question 29

29 The graph of $y = f(x)$ is shown below. The cubic function has a leading coefficient of 1.



Write an equation for $f(x)$.

$f(x) = x^3(x-3)(x+1) + 6$

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

Question 30

30 Given $f(x) = \frac{2}{3}x + 6$, write the equation of $f^{-1}(x)$.

$$x = \frac{2}{3}y + 6$$

$$\frac{3}{2}(x-6) = \frac{2}{3}y \quad \cdot \frac{3}{2}$$

$$\frac{3}{2}(x-6) = f^{-1}(x)$$

$$\boxed{f^{-1}(x) = \frac{3}{2}x - 9}$$

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

Question 30

30 Given $f(x) = \frac{2}{3}x + 6$, write the equation of $f^{-1}(x)$.

y

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

$$\frac{3}{2} \cdot \frac{2}{3}y = \frac{(x-6)3}{2}$$

$$y = \frac{3x-18}{2}$$

$$f^{-1}(x) = \frac{3x-18}{2}$$

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

Question 30

30 Given $f(x) = \frac{2}{3}x + 6$, write the equation of $f^{-1}(x)$.

$$y = \frac{2}{3}x + 6$$

$$x = \frac{2}{3}y + 6$$

$$-6 \qquad -6$$

$$\frac{3}{2}(x-6) = \left(\frac{2}{3}\right)y\ \frac{3}{2}$$

$$\frac{3}{2}(x-6) = y$$

$$\frac{3}{2}x - 9 = y$$

$$\boxed{f^{-1}(x) = 3x - 9}$$

Score 1: The student made a transcription error.

Question 30

30 Given $f(x) = \frac{2}{3}x + 6$, write the equation of $f^{-1}(x)$.

$y = \frac{2}{3}x + 6$

$x = \frac{2}{3}y + 6$
$\quad - 6$

$\frac{3}{2}\left(\frac{2}{3}\right)y = (x - 6)(3/2)$

$y = 3/2x - 9$

Score 1: The student did not use $f^{-1}(x)$ when writing the equation.

Question 30

30 Given $f(x) = \frac{2}{3}x + 6$, write the equation of $f^{-1}(x)$.

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

$\boxed{f^{-1}(x) = -\frac{2}{3}x - 6}$

Score 0: The student incorrectly found the inverse.

Question 30

30 Given $f(x) = \frac{2}{3}x + 6$, write the equation of $f^{-1}(x)$.

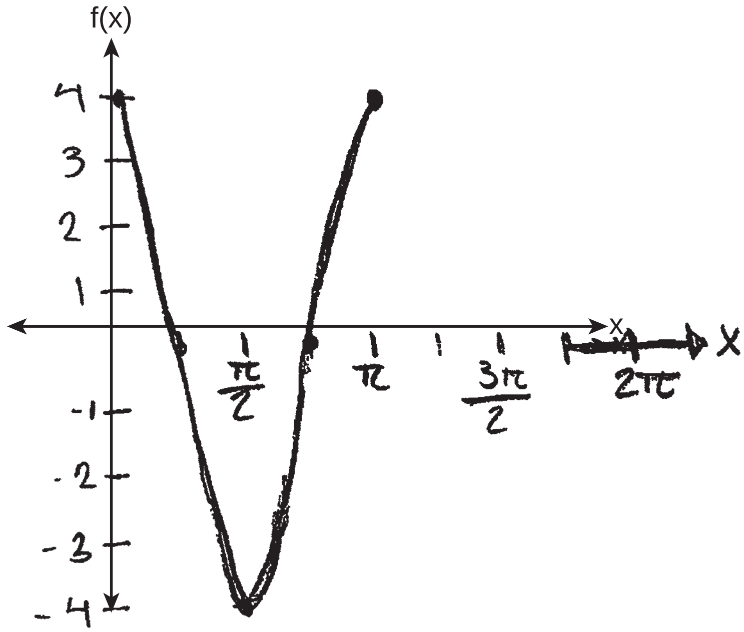
$f^{-1}(x) = \frac{2}{3}(-1) + 6$

$\boxed{f^{-1}(x) = \frac{16}{3}}$

Score 0: The student evaluated $f(-1)$.

Question 31

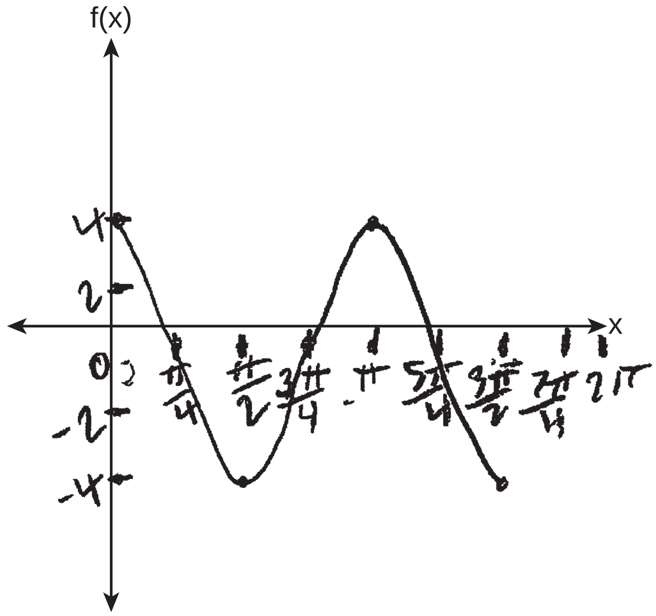
31 On the coordinate plane below, sketch *at least one cycle* of the function $f(x) = 4\cos(2x)$. Label the axes with an appropriate scale.



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

Question 31

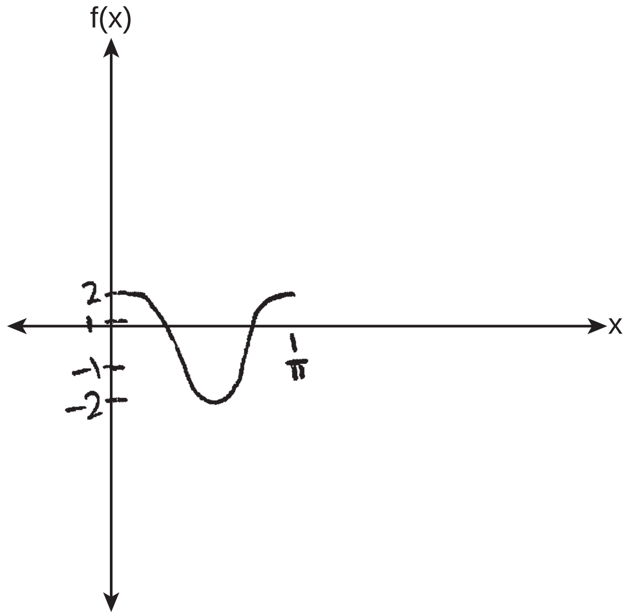
31 On the coordinate plane below, sketch *at least one cycle* of the function $f(x) = 4\cos(2x)$. Label the axes with an appropriate scale.



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

Question 31

31 On the coordinate plane below, sketch *at least one cycle* of the function $f(x) = 4\cos(2x)$. Label the axes with an appropriate scale.

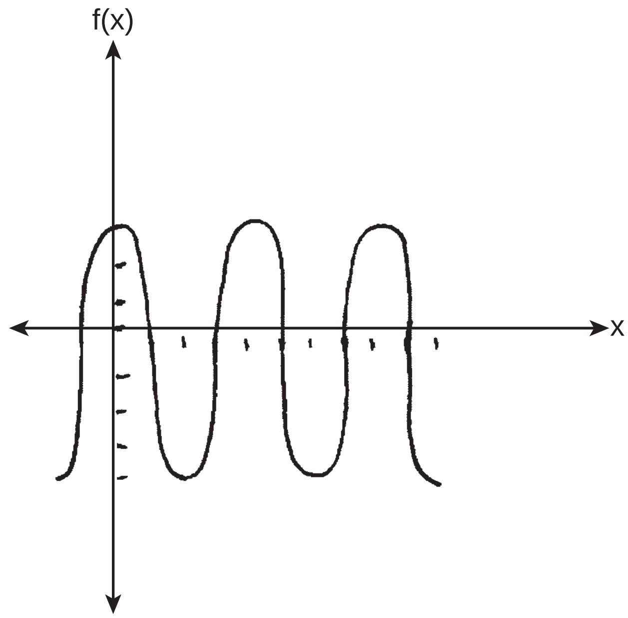


$$\frac{\cancel{2}\pi}{1} \times \frac{1}{\cancel{2}} = \pi$$

Score 1: The student graphed the amplitude incorrectly.

Question 31

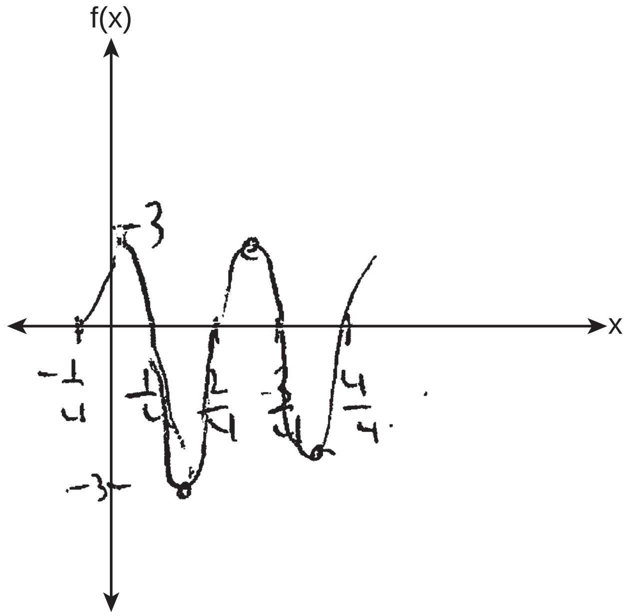
31 On the coordinate plane below, sketch *at least one cycle* of the function $f(x) = 4\cos(2x)$. Label the axes with an appropriate scale.



Score 1: The student did not indicate a scale on the x-axis.

Question 31

31 On the coordinate plane below, sketch *at least one cycle* of the function $f(x) = 4\cos(2x)$. Label the axes with an appropriate scale.



Score 0: The student made multiple graphing errors.

Question 32

32 In a recent online contest with a large number of randomly selected human players, the computer player won 67% of the time. The game-design company claims that the computer player can beat human players 70% of the time. The company runs a simulation of a large number of games, with the same number of human players, assuming that the computer wins 70% of the time. The simulation is approximately normal with a mean of 0.705 and a standard deviation of 0.045.

Does the contest result provide evidence to contradict the designer's claim? Use the simulation results to justify your answer.

$(.615, .795) \rightarrow (61.5\%, 79.5\%)$

No, 67% is within the range between 61.5% and 79.6%

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

Question 32

32 In a recent online contest with a large number of randomly selected human players, the computer player won 67% of the time. The game-design company claims that the computer player can beat human players 70% of the time. The company runs a simulation of a large number of games, with the same number of human players, assuming that the computer wins 70% of the time. The simulation is approximately normal with a mean of 0.705 and a standard deviation of 0.045.

Does the contest result provide evidence to contradict the designer's claim? Use the simulation results to justify your answer.

.7 The contest does not provide evidence to challenge the claim

.67

.705

± 0.045 .67 is within

INT .66, .75

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

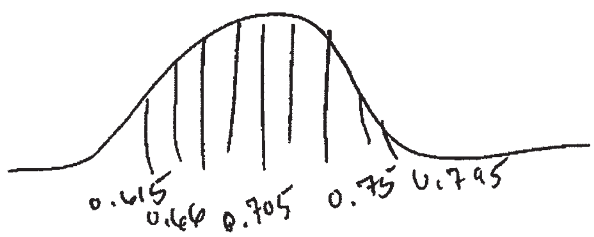
Question 32

32 In a recent online contest with a large number of randomly selected human players, the computer player won 67% of the time. The game-design company claims that the computer player can beat human players 70% of the time. The company runs a simulation of a large number of games, with the same number of human players, assuming that the computer wins 70% of the time. The simulation is approximately normal with a mean of 0.705 and a standard deviation of 0.045.

Does the contest result provide evidence to contradict the designer's claim? Use the simulation results to justify your answer.

mean : 0.705

SD : 0.045



No, the contest result doesn't provide evidence to contradict the designer's claim.

Score 1: The student wrote an incomplete justification.

Question 32

32 In a recent online contest with a large number of randomly selected human players, the computer player won 67% of the time. The game-design company claims that the computer player can beat human players 70% of the time. The company runs a simulation of a large number of games, with the same number of human players, assuming that the computer wins 70% of the time. The simulation is approximately normal with a mean of 0.705 and a standard deviation of 0.045.

Does the contest result provide evidence to contradict the designer's claim? Use the simulation results to justify your answer.

MOE = 2σ 2(0.045) = .09

(.615, .795)

(61.5, 79.5)

The results show the designer's claim being true because ~~70.0~~ 70% fits in the ~~in~~ confidence interval.

Score 1: The student used 70% in their justification.

Question 32

32 In a recent online contest with a large number of randomly selected human players, the computer player won 67% of the time. The game-design company claims that the computer player can beat human players 70% of the time. The company runs a simulation of a large number of games, with the same number of human players, assuming that the computer wins 70% of the time. The simulation is approximately normal with a mean of 0.705 and a standard deviation of 0.045.

Does the contest result provide evidence to contradict the designer's claim? Use the simulation results to justify your answer.

No cause 67% is close to the designers claim of 70%.

Score 0: The student wrote an incorrect justification.

Question 33

33 Solve algebraically for x: $\frac{2}{x} = \frac{2x+3}{x-4}$. Express your answers in simplest $a + bi$ form.

$x(x-4)$

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

$$2x - 8 = 2x^2 + 3x$$

$$-2x \quad +8 \qquad -2x \quad +8$$

$$2x^2 + x + 8 = 0$$

$$a=2 \quad b=1 \quad c=8$$

$$\frac{-1 \pm \sqrt{1-4(2)(8}}{2(2)}$$

$$\frac{-1 \pm \sqrt{-63}}{4}$$

$21 < \begin{matrix}3\\7\end{matrix}$ 3

$$\frac{-1 \pm 3i\sqrt{7}}{4}$$

$$\boxed{\frac{-1}{4} \pm \frac{3i\sqrt{7}}{4}}$$

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

Question 33

33 Solve algebraically for x: $\frac{2}{x} = \frac{2x+3}{x-4}$. Express your answers in simplest $a + bi$ form.

$2x - 8 = 2x^2 + 3x$

$-2x + 8 \qquad -2x$

$2x^2 + x + 8$

$a = 2$

$b = 1$

$c = 8$

$\frac{-1 \pm \sqrt{1-64}}{4}$

$\sqrt{-63}$

$\frac{-1 \pm 3\sqrt{7}}{4}$

$$\boxed{\begin{array}{l} x = \frac{-1}{4} + \frac{3i\sqrt{7}}{4} \\ x = \frac{-1}{4} - \frac{3i\sqrt{7}}{4} \end{array}}$$

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

Question 33

33 Solve algebraically for x: $\frac{2}{x} = \frac{2x + 3}{x - 4}$. Express your answers in simplest $a + bi$ form.

$2x - 8 = 2x^2 + 3x$

$-2x + 8$

$0 = 2x^2 + x + 8$

$(2x \quad)(x \quad)$

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

$x = \frac{-1 \pm \sqrt{1 - 64}}{4}$

$x = \frac{-1 \pm i\sqrt{63}}{4}$

$x = \frac{-1}{4} \pm \frac{i\sqrt{63}}{4}$

Score 3: The student did not simplify the radical.

Question 33

33 Solve algebraically for x: $\frac{2}{x} = \frac{2x + 3}{x - 4}$. Express your answers in simplest $a + bi$ form.

$(x-4)(\cancel{x})$ $\quad \cancel{(x-4)}(x)$ $\quad$ LCD: $(x+4)(x)$

$$\frac{2}{\cancel{x}} = \frac{2x+3}{\cancel{x-4}}$$

$$2x - 8 = 2x^2 + 3$$
$$+8 \qquad\qquad +8$$

$$2x^2 - 2x + 11 = 0$$
$$a \quad b \quad c$$

$$\frac{2 \pm \sqrt{(-2)^2 - 4(2)(11)}}{2(2)}$$

$$\frac{2 \pm \sqrt{-84}}{4} \qquad \sqrt{21}\ \sqrt{4}$$

$$\frac{{}^{1}\cancel{2} \pm \overset{1}{\cancel{2}} i\sqrt{21}}{2\cancel{4}}$$

$$\boxed{\frac{1}{2} \pm \frac{i\sqrt{21}}{2}} \qquad \boxed{\frac{1}{2} - \frac{i\sqrt{21}}{2}}$$

Score 3: The student made a computational error.

Question 33

33 Solve algebraically for x: $\frac{2}{x} = \frac{2x+3}{x-4}$. Express your answers in simplest $a + bi$ form.

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

$$2x-8 = 2x^2+3x$$

$$2x^2+x+8=0$$

$$D = b^2-4ac = 1-4(2)(8) = 1-8(8) = 1-64 = -63$$

$$x_{1,2} = \frac{-b \pm \sqrt{b^2-4ac}}{2a} = \frac{-1 \pm \sqrt{-63}}{4} = \frac{-1 \pm i\sqrt{63}}{4}$$

$$\boxed{x_1 = \frac{-1+i\sqrt{63}}{4} \quad x_2 = \frac{-1-i\sqrt{63}}{4}}$$

Score 2: The student did not express in $a + bi$ form and did not simplify the radical.

Question 33

33 Solve algebraically for x: $\frac{2}{x} = \frac{2x+3}{x-4}$. Express your answers in simplest $a + bi$ form.

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

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

$$2x^2+3x = 2x-4$$
$$-2x+4 \quad -2x+4$$

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

$$a=2 \quad b=1 \quad c=4$$

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

$$x = \frac{-2 \pm \sqrt{-28}}{4}$$

$$x = \frac{-2}{4} \pm \frac{\cancel{2}i\sqrt{7}}{\cancel{2}}$$

$$\boxed{x = \frac{-1}{2} + i\sqrt{7} \quad x = -\frac{1}{2} - i\sqrt{7}}$$

Score 1: The student made three errors.

Question 33

33 Solve algebraically for x: $\frac{2}{x} = \frac{2x + 3}{x - 4}$. Express your answers in simplest $a + bi$ form.

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

$$(2x-8) = 2x^2 + 3x$$

$$-2x \quad +8$$

$$0 = 2x^2 + 1x + 8$$

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

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

$$x = -1 \pm \frac{\sqrt{-63}}{4}$$

$$x = -1 \pm \frac{63i}{4}$$

Score 1: The student showed work to find a correct quadratic equation in standard form.

Question 33

33 Solve algebraically for x: $\frac{2}{x} = \frac{2x+3}{x-4}$. Express your answers in simplest $a + bi$ form.

$b^2 - 4ac$

$1 - 64$

-63

$2x - 8 = 2x^2 + 3x$

$2x^2 - x + 8 = 0$

$$\frac{-b \pm \sqrt{-63}}{2a}$$

$$\frac{1 \pm \sqrt{-63}}{2(2)}$$

$$\frac{1 \pm \sqrt{-63}}{4}$$

Score 1: The student made a computational error and did not express the answer in simplest $a + bi$ form.

Question 33

33 Solve algebraically for x: $\frac{2}{x} = \frac{2x+3}{x-4}$. Express your answers in simplest $a + bi$ form.

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

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

$$2x^2+3x = 2x-8$$

$$-2x+8 \quad -2x \quad +8$$

$$2x^2 - x + 8 = 0$$

Score 0: The student did not satisfy the criteria for one or more credits.

Question 33

33 Solve algebraically for x: $\frac{2}{x} = \frac{2x + 3}{x - 4}$. Express your answers in simplest $a + bi$ form.

$$\frac{(x-4)}{(x-4)}\frac{2}{(x)} = \frac{(x)2x+3}{(x)(x-4)} \rightarrow \frac{2(x-4)+2x^2+3x}{x(x-4)}$$

$$\rightarrow \frac{2x-8+2x^2+3x}{x^2-4x} \rightarrow \frac{2x^2+5x-8}{x^2-4x}$$

$x^2+5x-16$

$$\boxed{\frac{2x^2+5x-8}{(x^2-4x)}}$$

Score 0: The student did not satisfy the criteria for one or more credits.

Question 34

34 A highly selective college reports that the mean score earned by accepted students on the Mathematics Level 2 subject test is 750 with a standard deviation of 20 and that the scores are approximately normally distributed.

Given this information, determine the interval representing the middle 95% of student scores.

95% = 2 standard deviations

$750 \pm 2(20) = 710, 790$

95% of students score within the interval of $710 \leq p \leq 790$

To the *nearest whole percent*, determine the percentage of accepted students who scored a 760 or less.

normalcdf$(10^{-99}, 760, 750, 20) = .6914624678$

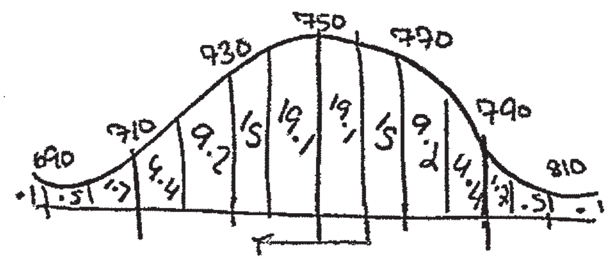
69% of accepted students scored a 760 or less

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

Question 34

34 A highly selective college reports that the mean score earned by accepted students on the Mathematics Level 2 subject test is 750 with a standard deviation of 20 and that the scores are approximately normally distributed.

Given this information, determine the interval representing the middle 95% of student scores.



710 - 790

To the *nearest whole percent*, determine the percentage of accepted students who scored a 760 or less.

$19.1 + 19.1 + 15 + 9.2 + 4.4 + 1.7 + .6 =$

69%

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

Question 34

34 A highly selective college reports that the mean score earned by accepted students on the Mathematics Level 2 subject test is 750 with a standard deviation of 20 and that the scores are approximately normally distributed.

Given this information, determine the interval representing the middle 95% of student scores.

95% is 2 deviations away from the mean.

$20(2) = 40$

40 is 2 standard deviations away

$750 + 40$ $\quad$ $750 - 40$

790 $\quad$ 710

$710 - 750$

To the *nearest whole percent*, determine the percentage of accepted students who scored a 760 or less.

normal cdf$(10^{-99}, 760, 750, 20)$

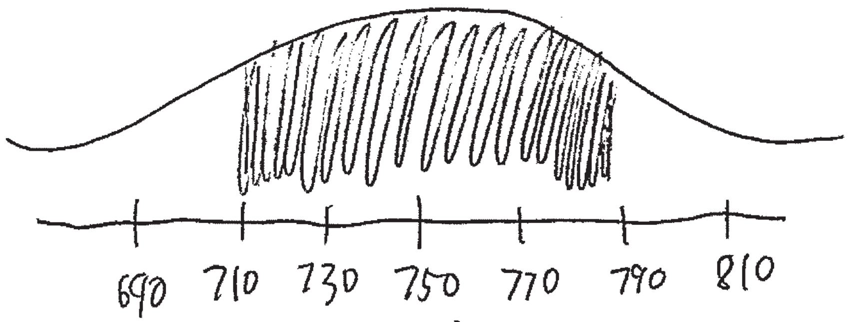
.691

69%

Score 3: The student made a transcription error.

34 A highly selective college reports that the mean score earned by accepted students on the Mathematics Level 2 subject test is 750 with a standard deviation of 20 and that the scores are approximately normally distributed.

Given this information, determine the interval representing the middle 95% of student scores.



$710 \le X \le 790$

To the *nearest whole percent*, determine the percentage of accepted students who scored a 760 or less.

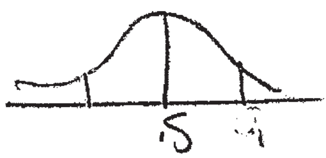
69%

Score 3: The student did not show work to find the percent.

Question 34

34 A highly selective college reports that the mean score earned by accepted students on the Mathematics Level 2 subject test is 750 with a standard deviation of 20 and that the scores are approximately normally distributed.

Given this information, determine the interval representing the middle 95% of student scores.



$[710, 790]$

To the *nearest whole percent*, determine the percentage of accepted students who scored a 760 or less.

$$\frac{760 - 750}{20} = .5$$

$(-999, .5, 0, 1)$

69.14

$\boxed{70\%}$

Score 2: The student did not show enough work to determine the interval and incorrectly rounded the percent.

Question 34

34 A highly selective college reports that the mean score earned by accepted students on the Mathematics Level 2 subject test is 750 with a standard deviation of 20 and that the scores are approximately normally distributed.

Given this information, determine the interval representing the middle 95% of student scores.

$750 + 2(20)$ and $750 - 2(20)$

740

A score between 710 and 790

To the *nearest whole percent*, determine the percentage of accepted students who scored a 760 or less.

$710 \text{ to } 760$

$$\begin{array}{r} 760 \\ -710 \\ \hline 50 \end{array} \qquad \begin{array}{r} 790 \\ -710 \\ \hline 80 \end{array}$$

63%

$\frac{50}{80} = .625$

Score 2: The student correctly determined the interval.

Question 34

34 A highly selective college reports that the mean score earned by accepted students on the Mathematics Level 2 subject test is 750 with a standard deviation of 20 and that the scores are approximately normally distributed.

Given this information, determine the interval representing the middle 95% of student scores.

710 - 790

To the *nearest whole percent*, determine the percentage of accepted students who scored a 760 or less.

Score 1: The student did not show work to determine the interval.

Question 34

34 A highly selective college reports that the mean score earned by accepted students on the Mathematics Level 2 subject test is 750 with a standard deviation of 20 and that the scores are approximately normally distributed.

Given this information, determine the interval representing the middle 95% of student scores.

To the *nearest whole percent*, determine the percentage of accepted students who scored a 760 or less.

normal cdf (0, 760, 750, 20)

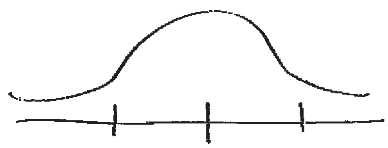
$\hookrightarrow \approx .7 = 70\%$

Score 1: The student incorrectly rounded the percent.

Question 34

34 A highly selective college reports that the mean score earned by accepted students on the Mathematics Level 2 subject test is 750 with a standard deviation of 20 and that the scores are approximately normally distributed.

Given this information, determine the interval representing the middle 95% of student scores.



20

(−730 , 770)

To the *nearest whole percent*, determine the percentage of accepted students who scored a 760 or less.

760 − 20 = 740%

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

Question 34

34 A highly selective college reports that the mean score earned by accepted students on the Mathematics Level 2 subject test is 750 with a standard deviation of 20 and that the scores are approximately normally distributed.

Given this information, determine the interval representing the middle 95% of student scores.

$(0, 712.5)$

To the *nearest whole percent*, determine the percentage of accepted students who scored a 760 or less.

69.1%

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

Question 35

35 For $c(x) = 3x^2 - 4x + 7$ and $d(x) = x - 2$, determine $c(x) \bullet d(x) - [d(x)]^3$ as a polynomial in standard form.

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

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

$$3x^3 - 4x^2 + 7x - 6x^2 + 8x - 14$$

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

$$(3x^3 - 10x^2 + 15x - 14) - (x^3 - 4x^2 + 4x - 2x^2 + 8x - 8)$$

$$(\cancel{3x^3} \cancel{-10x^2} \cancel{+15x} - 14) - (\cancel{x^3} \cancel{-6x^2} \cancel{+12x} - 8)$$

$$\boxed{2x^3 - 4x^2 + 3x - 6}$$

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

Question 35

35 For $c(x) = 3x^2 - 4x + 7$ and $d(x) = x - 2$, determine $c(x) \bullet d(x) - [d(x)]^3$ as a polynomial in standard form.

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

$$= (x-2)[(3x^2 - 4x + 7) - (x-2)^2]$$

$$= (x-2)[3x^2 - 4x + 7 - (x^2 + 4 - 4x)]$$

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

$$= 2x^3 + 3x - 4x^2 - 6$$

$$= 2x^3 - 4x^2 + 3x - 6$$

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

Question 35

35 For $c(x) = 3x^2 - 4x + 7$ and $d(x) = x - 2$, determine $c(x) \bullet d(x) - [d(x)]^3$ as a polynomial in standard form.

$C(x) \cdot d(x) - [d(x)]^3$
$3x^2 - 4x + 7 \cdot x - 2 - [x-2]^3$
$(3x^3 - 10x^2 + 15x - 14) - x^3 - 6x^2 + 12x - 8$
$\boxed{2x^3 - 16x^2 + 27x - 22}$

	$3x^2$	$-4x$	7
x	$3x^3$	$-4x^2$	$7x$
-2	$-6x^2$	$8x$	-14

$3x^3 - 4x^2 + 7x - 6x^2 + 8$
$3x^3 - 10x^2 + 15x - 14$

$(x-2)^3$
$(x-2)(x-2)(x-2)$
$x^2 - 2x - 2x + 4$
$(x^2 - 4x + 4)(x-2)$
$x^3 - 2x^2 - 4x^2 + 8x + 4x$
$x^3 - 6x^2 + 12x - 8$

Score 3: The student made a computational error distributing the negative.

Question 35

35 For $c(x) = 3x^2 - 4x + 7$ and $d(x) = x - 2$, determine $c(x) \bullet d(x) - [d(x)]^3$ as a polynomial in standard form.

$(3x^2-4x+7)(x-2) - [x-2]^3$

$3x^3 - 4x^2 + 7x - 6x^2 + 8x - 14$

$[x-2][x-2][x-2]$

$x^2 - 2x - 2x + 4$

$[x^2-4x+4][x-2)$

$x^3 - 4x^2 - 8 - 2x^2 + 8x - 8$

$x^3 - 6x^2 + 8x - 16$

$3x^3 - 10x^2 + 15x - 14 \quad - x^3 - 6x^2 + 8x - 16$

$2x^3 - 16x^2 + 23x - 30$

Score 2: The student made two computational errors.

Question 35

35 For $c(x) = 3x^2 - 4x + 7$ and $d(x) = x - 2$, determine $c(x) \bullet d(x) - [d(x)]^3$ as a polynomial in standard form.

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

$x^2 + x^2 - 2x + 2x$

$-8 + 4$

$(3x^2 - 4x + 7) \cdot (x - 2)$

$3x^3 - 4x^2 - 14 - 6x^2 + 8x + 7x$

$3x^3 - 10x^2 + 15x - 14$

Score 1: The student correctly determined $c(x) \bullet d(x)$.

Question 35

35 For $c(x) = 3x^2 - 4x + 7$ and $d(x) = x - 2$, determine $c(x) \bullet d(x) - [d(x)]^3$ as a polynomial in standard form.

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

$\cancel{x^2 - 2x + 4}$

$3x^3 - 6x^2 - 4x^2 + 8x + 7x - 14 - (x^3 + 4x^2 + 8x - 8)$

$2x^3 - 14x^2 + 7x + 6$

Score 1: The student incorrectly determined $[d(x)]^3$ and then made a computational error.

Question 35

35 For $c(x) = 3x^2 - 4x + 7$ and $d(x) = x - 2$, determine $c(x) \bullet d(x) - [d(x)]^3$ as a polynomial in standard form.

$(3x^2 - 4x + 7)(x - 2) - [x - 2]^3$

$3x^2 - 6x^2 - 4x^2 \boxed{+8x} \boxed{+7x} - 14$

$-7x^2 + 15x - 14 - [x-2]^3$

$\downarrow$

$x + 2^3 = 18$

$-7x^2 + 15x \boxed{-14} \boxed{+18}$

$\boxed{-7x^2 + 15x + 4}$ - Answer

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

Question 35

35 For $c(x) = 3x^2 - 4x + 7$ and $d(x) = x - 2$, determine $c(x) \bullet d(x) - [d(x)]^3$ as a polynomial in standard form.

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

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

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

$$3x^2 - 4x + 7 - x^3 - 4x^2 + 4x$$

Score 0: The student did not satisfy the criteria for one or more credits.

Question 36

36 Christopher works for a defense contractor and earned \$85,000 his first year. For each additional year he will receive a 2.5% raise.

Write a geometric series formula, C_n, for Christopher's total earnings over n years.

$$C_n = \frac{a_1 - a_1 r^n}{1-r}$$

$$C_n = \frac{85{,}000 - 85{,}000(1.025)^n}{1-(1.025)}$$

Use this formula to find Christopher's total earnings, to the *nearest hundred dollars*, over his first 10 years of employment.

$$C_{10} = \frac{85{,}000 - 85{,}000(1.025)^{10}}{1-(1.025)} \approx \boxed{\$952{,}300}$$

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

36 Christopher works for a defense contractor and earned \$85,000 his first year. For each additional year he will receive a 2.5% raise.

Write a geometric series formula, C_n, for Christopher's total earnings over n years.

$$C_n = \frac{a_1(1-r^n)}{1-r} \rightarrow C_n = \frac{85000(1-1.025^n)}{1-1.025}$$

Use this formula to find Christopher's total earnings, to the *nearest hundred dollars*, over his first 10 years of employment.

$$C_{10} = \frac{85000(1-1.025^{10})}{1-1.025}$$

$$C_{10} = 952{,}300$$

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

36 Christopher works for a defense contractor and earned \$85,000 his first year. For each additional year he will receive a 2.5% raise.

Write a geometric series formula, C_n, for Christopher's total earnings over n years.

$$S_n = \frac{a_1 - a_1 r^n}{1-r}$$

$$S_n = \frac{85{,}000 - 85{,}000(1.025)^n}{1 - 1.025}$$

Use this formula to find Christopher's total earnings, to the *nearest hundred dollars*, over his first 10 years of employment.

$$S_{10} = \frac{85{,}000 - 85{,}000(1.025)^{10}}{1 - 1.025}$$

$$S_{10} = 952{,}287.45$$

\$952,300

Score 3: The student made a notation error.

Question 36

36 Christopher works for a defense contractor and earned \$85,000 his first year. For each additional year he will receive a 2.5% raise.

Write a geometric series formula, C_n, for Christopher's total earnings over n years.

$$C_n = \frac{85000 - 85000(0.025)^n}{1 - 0.025}$$

Use this formula to find Christopher's total earnings, to the *nearest hundred dollars*, over his first 10 years of employment.

$$C_{10} = \frac{85000 - 85000(0.025)^{10}}{1 - 0.025}$$

$$C_{10} = \frac{85000}{0.975}$$

$$\boxed{C_{10} = 87200}$$

Score 3: The student used the incorrect "*r*" value.

Question 36

36 Christopher works for a defense contractor and earned \$85,000 his first year. For each additional year he will receive a 2.5% raise.

Write a geometric series formula, C_n, for Christopher's total earnings over n years.

.025

$$\boxed{S_n = \frac{(85{,}000 - 85{,}000(1.025^n))}{(1-1.025)}}$$

Use this formula to find Christopher's total earnings, to the *nearest hundred dollars*, over his first 10 years of employment.

$$S_{10} = \frac{(85{,}000 - 85{,}000(1.025^{10}))}{(1-1.025)}$$

$$S_{10} = \frac{-23807.18626}{-0.025}$$

$$S_{10} = 952287.4504$$

$$\boxed{S_{10} = 952{,}300.45}$$

Score 2: The student made a notation error and a rounding error.

Question 36

36 Christopher works for a defense contractor and earned \$85,000 his first year. For each additional year he will receive a 2.5% raise.

Write a geometric series formula, C_n, for Christopher's total earnings over n years.

$$S_n = \frac{85000 - 85000(.025)^n}{1 - .025}$$

Use this formula to find Christopher's total earnings, to the *nearest hundred dollars*, over his first 10 years of employment.

$$S_n = \frac{85000 - 85000(.025)^{10}}{1 - .025}$$

$$= \$87179.48718$$

$$\boxed{\$87200}$$

Score 2: The student made a notation error and used the incorrect "r" value.

Question 36

36 Christopher works for a defense contractor and earned \$85,000 his first year. For each additional year he will receive a 2.5% raise.

Write a geometric series formula, C_n, for Christopher's total earnings over n years.

$$S_n = \frac{85000 - 85000(1.025)^n}{1 - 1.025}$$

Use this formula to find Christopher's total earnings, to the *nearest hundred dollars*, over his first 10 years of employment.

$$= \frac{85000 - 85000(1.025)^9}{1 - 1.025}$$

$$= 846134.0978$$

$$\approx 846134.10$$

Score 1: The student made a notational error writing the series formula, incorrectly substituted for "*n*," and made a rounding error.

Question 36

36 Christopher works for a defense contractor and earned \$85,000 his first year. For each additional year he will receive a 2.5% raise.

Write a geometric series formula, C_n, for Christopher's total earnings over n years.

$85{,}000 + 2.5n$

Use this formula to find Christopher's total earnings, to the *nearest hundred dollars*, over his first 10 years of employment.

$85{,}000 + 2.5(10)$

$= 85{,}025.$

Score 0: The student did not show enough relevant, correct course-level work to earn any credit.

Question 37

37 Cesium-137 decay can be modeled with the formula $A(t) = A_0 e^{kt}$, where $A(t)$ represents the mass remaining in grams after t years and A_0 represents the initial mass. A sample of 500 grams of cesium-137 takes approximately 60.34 years to decay to 125 grams. Use this sample with the given formula to determine the constant k, to the *nearest thousandth*.

$A(t) = A_0 e^{kt}$

$\frac{125}{500} = \frac{\cancel{500}e^{k(60.34)}}{\cancel{500}}$

$.25 = e^{60.34k}$

$\ln .25 = 60.34k$

$\frac{-1.386294361}{60.34} = \frac{\cancel{60.34}k}{\cancel{60.34}}$

$k = -.022974716$

$\boxed{k = -.023}$

Use this value for k to write a function, $A(t)$, that will find the mass of the 500-gram sample remaining after any amount of time, t, in years.

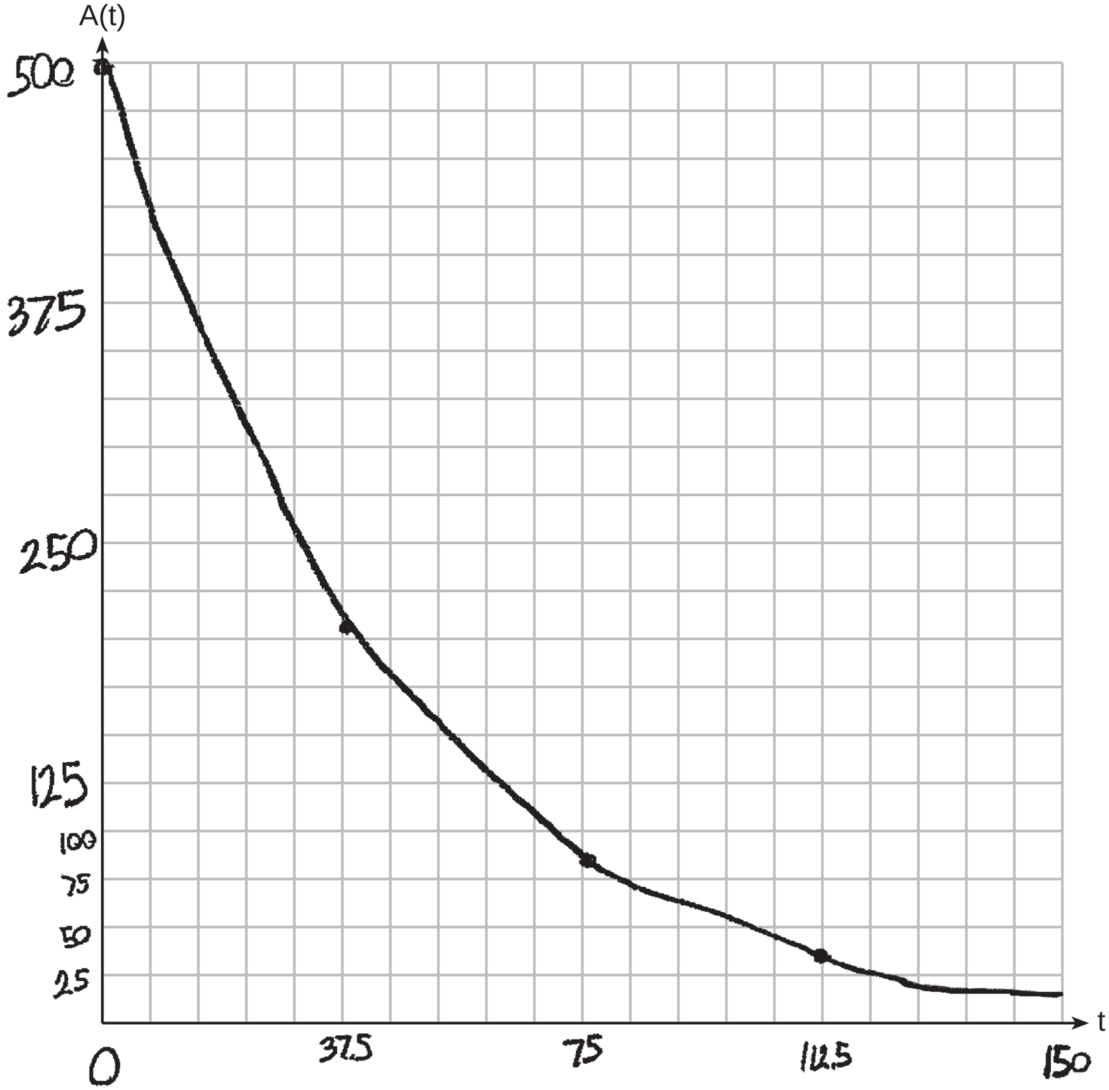
$A(t) = 500e^{-.023t}$

Question 37 is continued on the next page.

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

Question 37 continued

Graph $A(t)$ on the graph below from $t = 0$ to $t = 150$ years.



Use $A(t)$ to calculate the average rate of change in grams per year, from $t = 0$ to $t = 60$ years, to the *nearest tenth*.

$$\frac{\Delta y}{\Delta x} = \frac{125.789 - 500}{60 - 0}$$

$$-6.2 \text{ g/yr}$$

Explain what this value means in the given context.

The mass of the element decreases about 6.2 grams every year

Question 37

37 Cesium-137 decay can be modeled with the formula $A(t) = A_0e^{kt}$, where $A(t)$ represents the mass remaining in grams after t years and A_0 represents the initial mass. A sample of 500 grams of cesium-137 takes approximately 60.34 years to decay to 125 grams. Use this sample with the given formula to determine the constant k, to the *nearest thousandth*.

$$\frac{125}{500} = \frac{500e^{k(60.34)}}{500}$$

$$0.25 = e^{k(60.34)}$$

$$\ln .25 = k60.34$$

$$-1.386294361 = k60.34$$

$$\boxed{k = -0.023}$$

Use this value for k to write a function, $A(t)$, that will find the mass of the 500-gram sample remaining after any amount of time, t, in years.

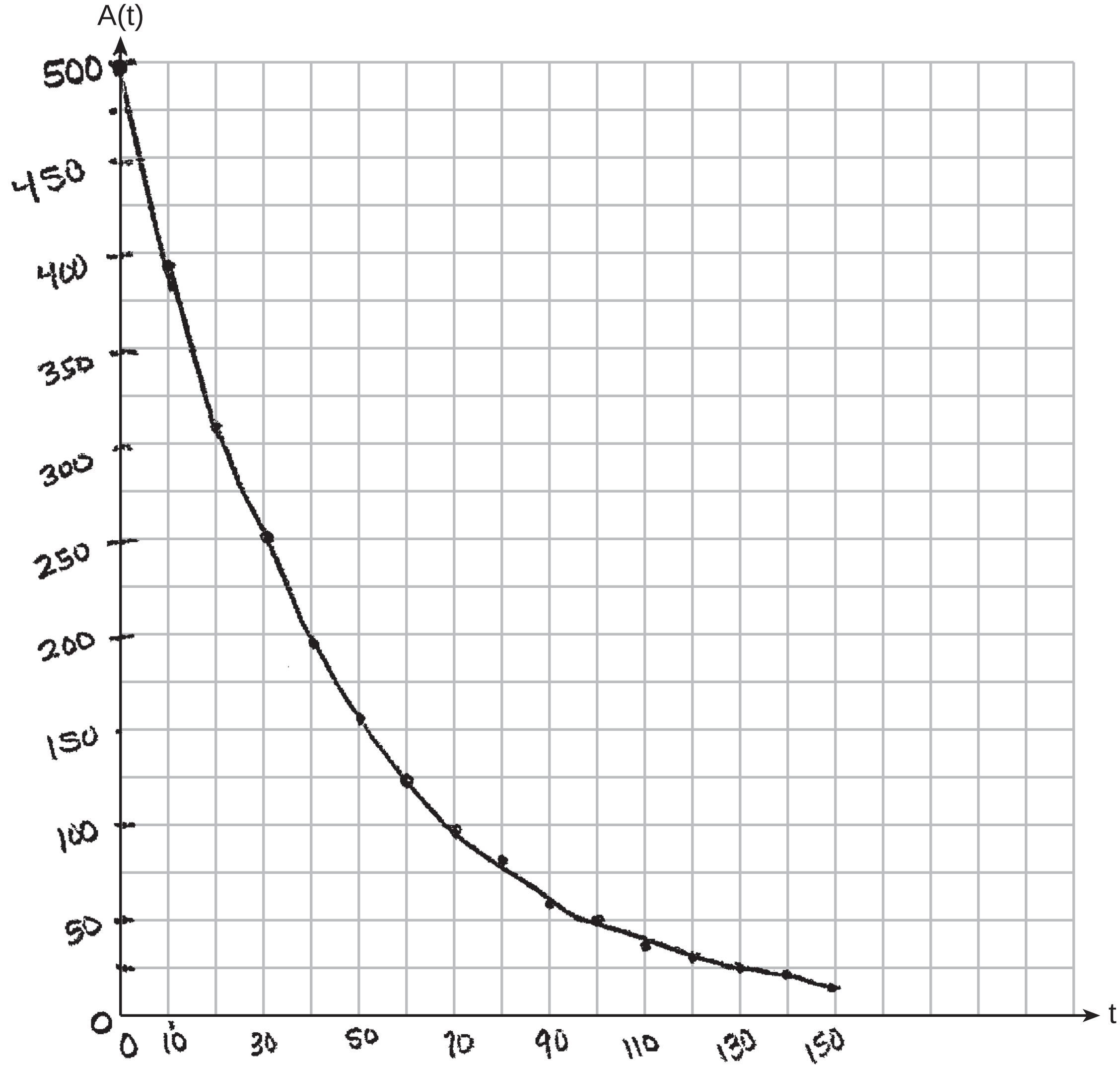
$$A(t) = 500e^{(-0.023)t}$$

Question 37 is continued on the next page.

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

Question 37 continued

Graph $A(t)$ on the graph below from $t = 0$ to $t = 150$ years.



Use $A(t)$ to calculate the average rate of change in grams per year, from $t = 0$ to $t = 60$ years, to the *nearest tenth*.

500 125.79

$(0, 500)$
$(60, 125.79)$

$$\frac{\Delta y}{\Delta x} = \frac{500 - 125.79}{0 - 60} = -\frac{374.21}{60} = \boxed{-6.2}$$

Explain what this value means in the given context.

-6.2 represents that the mass of Cesium-137 decays at an average rate of 6.2 grams per year.

Question 37

37 Cesium-137 decay can be modeled with the formula $A(t) = A_0e^{kt}$, where $A(t)$ represents the mass remaining in grams after t years and A_0 represents the initial mass. A sample of 500 grams of cesium-137 takes approximately 60.34 years to decay to 125 grams. Use this sample with the given formula to determine the constant k, to the *nearest thousandth*.

$A(t)=A_0e^{kt}$

$\frac{125}{500}=\frac{500}{500}e^{k(60.34)}$

$.25=e^{k(60.34}$

$\frac{\ln(.25)}{60.34}=\frac{(k*60.34)}{60.34}\ln e$ $k\approx -.023$

Use this value for k to write a function, $A(t)$, that will find the mass of the 500-gram sample remaining after any amount of time, t, in years.

$A(t)=500e^{(-.023)(t)}$

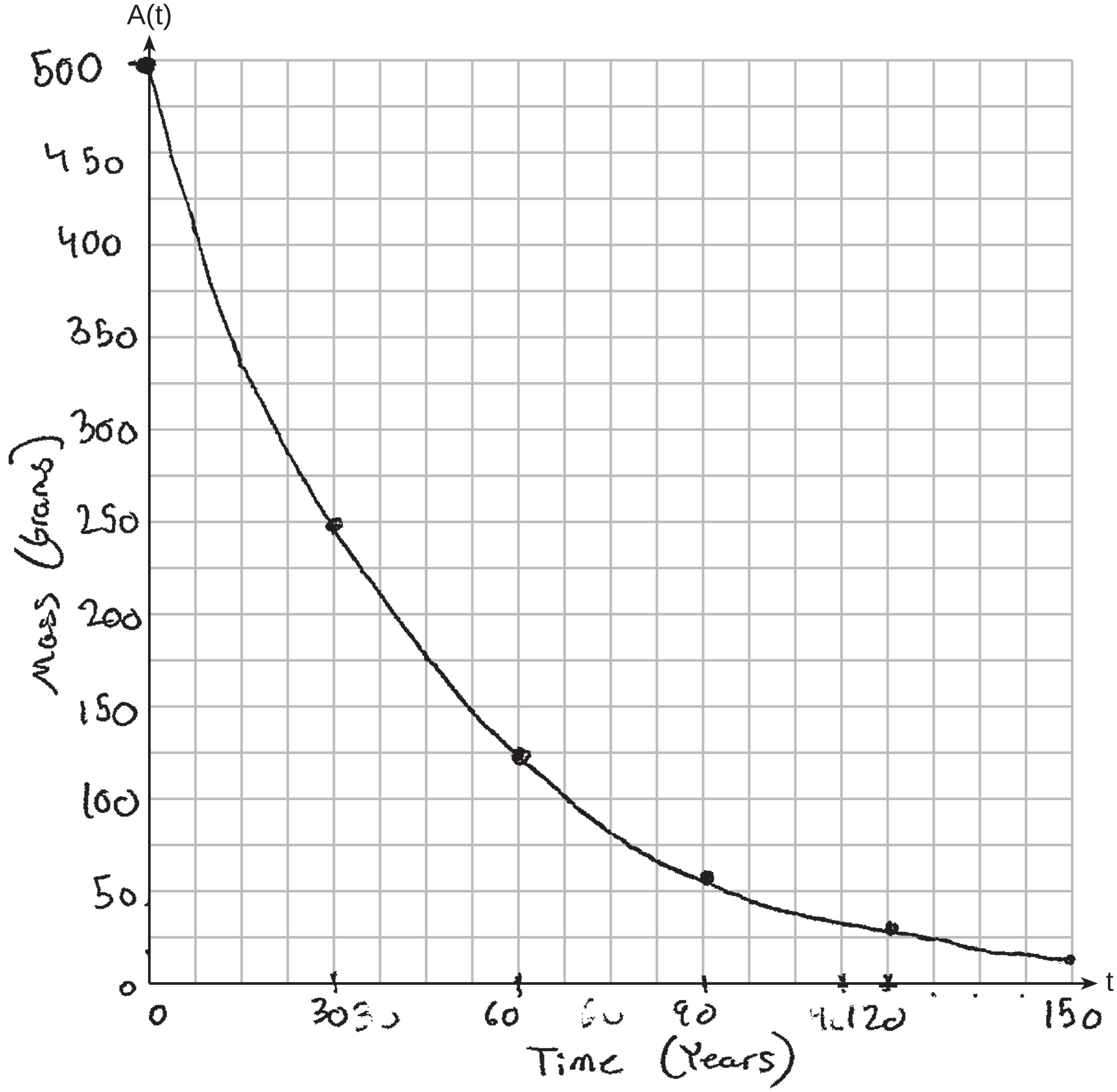
Question 37 is continued on the next page.

Score 5: The student made a rounding error calculating the average rate of change.

Question 37

Question 37 continued

Graph $A(t)$ on the graph below from $t = 0$ to $t = 150$ years.



Use $A(t)$ to calculate the average rate of change in grams per year, from $t = 0$ to $t = 60$ years, to the *nearest tenth*.

$$\frac{\Delta Y}{\Delta X} \quad \frac{500-125}{0-60} = -6.3$$

Explain what this value means in the given context.

Cesium-137 decays an average 6.3 grams per year between years zero and sixty,

Question 37

37 Cesium-137 decay can be modeled with the formula $A(t) = A_0e^{kt}$, where $A(t)$ represents the mass remaining in grams after t years and A_0 represents the initial mass. A sample of 500 grams of cesium-137 takes approximately 60.34 years to decay to 125 grams. Use this sample with the given formula to determine the constant k, to the *nearest thousandth*.

$$125 = 500e^{k(60.34)}$$

$$\frac{1}{4} = e^{k(60.34)}$$

$$\frac{\log_e \frac{1}{4}}{60.34} = \frac{k(60.34)}{60.34}$$

$$k = -.023$$

Use this value for k to write a function, $A(t)$, that will find the mass of the 500-gram sample remaining after any amount of time, t, in years.

$$A(t) = 500e^{-.023t}$$

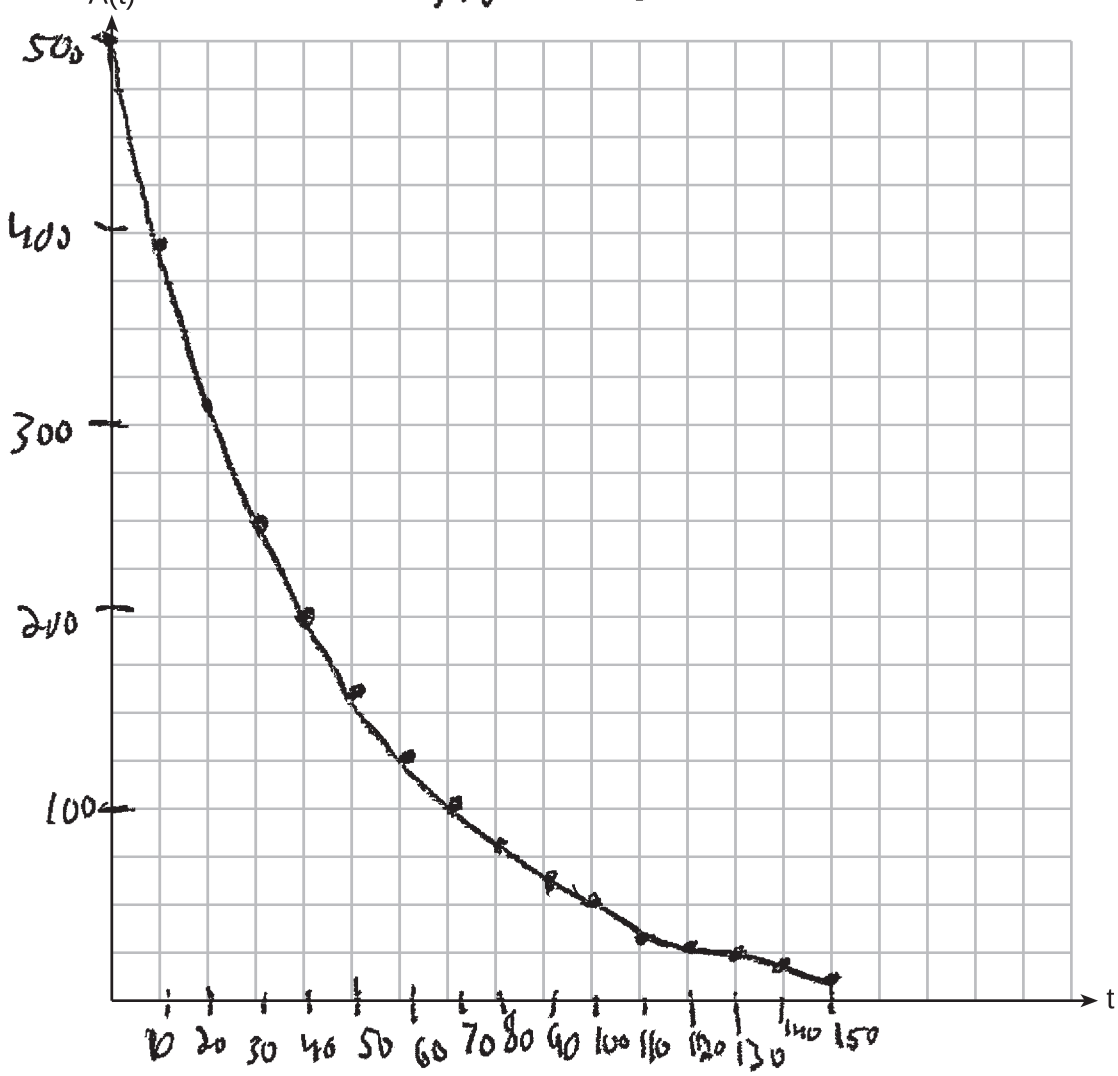
Question 37 is continued on the next page.

Score 5: The student incorrectly calculated the average rate of change.

Question 37 continued

Graph $A(t)$ on the graph below from $t = 0$ to $t = 150$ years.

$A(t) = 500e^{-.023t}$



Use $A(t)$ to calculate the average rate of change in grams per year, from $t = 0$ to $t = 60$ years, to the *nearest tenth*.

$A(60) = 500e^{-.023(60)}$

$A(60) = 125.78927653$

$\dfrac{125.78927653}{60} = 2.09648794216$

2.1

Explain what this value means in the given context.

between years 0 and 60, the average change per year is 2.1 grams.

Question 37

37 Cesium-137 decay can be modeled with the formula $A(t) = A_0 e^{kt}$, where $A(t)$ represents the mass remaining in grams after t years and A_0 represents the initial mass. A sample of 500 grams of cesium-137 takes approximately 60.34 years to decay to 125 grams. Use this sample with the given formula to determine the constant k, to the *nearest thousandth*.

$$\frac{125}{500} = e^{k(60.34)}$$

$$\ln\left(\frac{125}{500}\right) = \ln e^{k(60.34)}$$

$$\ln\left(\frac{125}{500}\right) = 60.34k \cdot \cancel{\ln e}$$

$$\frac{\ln\left(\frac{125}{500}\right)}{60.34} = \frac{60.34k}{60.34}$$

$$\frac{125}{500} = \frac{500e^{k(60.34)}}{500}$$

$$K = -0.022974715962$$

$$\boxed{K = -0.023}$$

Use this value for k to write a function, $A(t)$, that will find the mass of the 500-gram sample remaining after any amount of time, t, in years.

$$\boxed{A(t) = 500e^{-0.023t}}$$

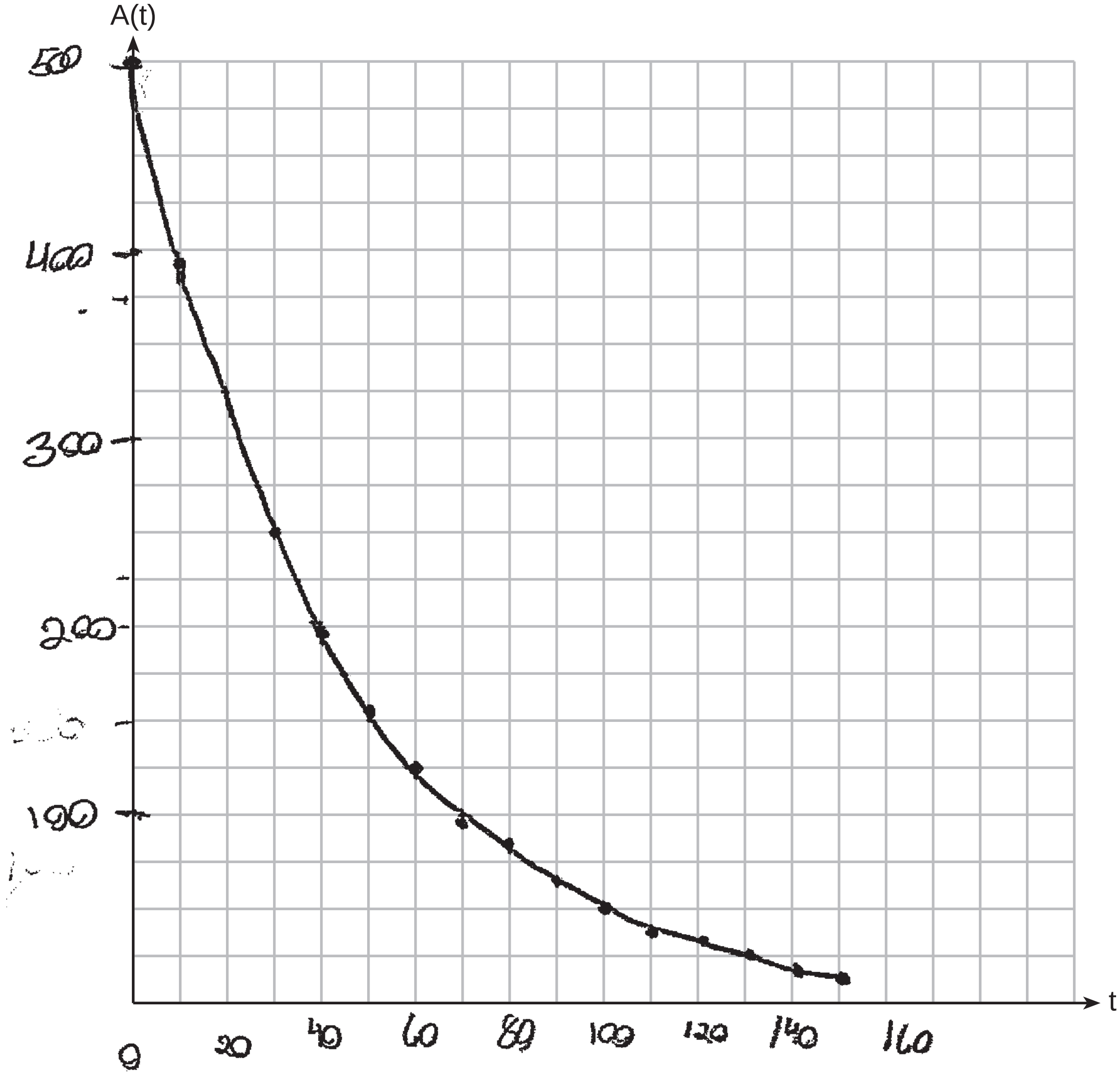
Question 37 is continued on the next page.

Score 4: The student incorrectly calculated the average rate of change, and the explanation was incomplete.

Question 37

Question 37 continued

Graph $A(t)$ on the graph below from $t = 0$ to $t = 150$ years.



Use $A(t)$ to calculate the average rate of change in grams per year, from $t = 0$ to $t = 60$ years, to the *nearest tenth*.

$$\frac{125-500}{60-0} = -6.25$$

Explain what this value means in the given context.

The value is the rate by which the line decreases

Question 37

37 Cesium-137 decay can be modeled with the formula $A(t) = A_0e^{kt}$, where $A(t)$ represents the mass remaining in grams after t years and A_0 represents the initial mass. A sample of 500 grams of cesium-137 takes approximately 60.34 years to decay to 125 grams. Use this sample with the given formula to determine the constant k, to the *nearest thousandth*.

$A_0 = 500.$
$t = 60.34$
$A = \cancel{50}125.$

$A_0 = Ae^{kt}.$
$125 = 500 \times e^{60.34k}$
$0.125 = e^{60.34k}.$
$e^k \approx 0.977.$

$e^k = 0.977$
$\ln 0.977 = k$
$k = -0.023$
$\cancel{2.718^k = 0.977}.$
$\cancel{\log_{2.718} 0.977 = k}$
$\cancel{k = -0.023}.$

Use this value for k to write a function, $A(t)$, that will find the mass of the 500-gram sample remaining after any amount of time, t, in years.

$A(t) = 500e^{-0.023t}.$

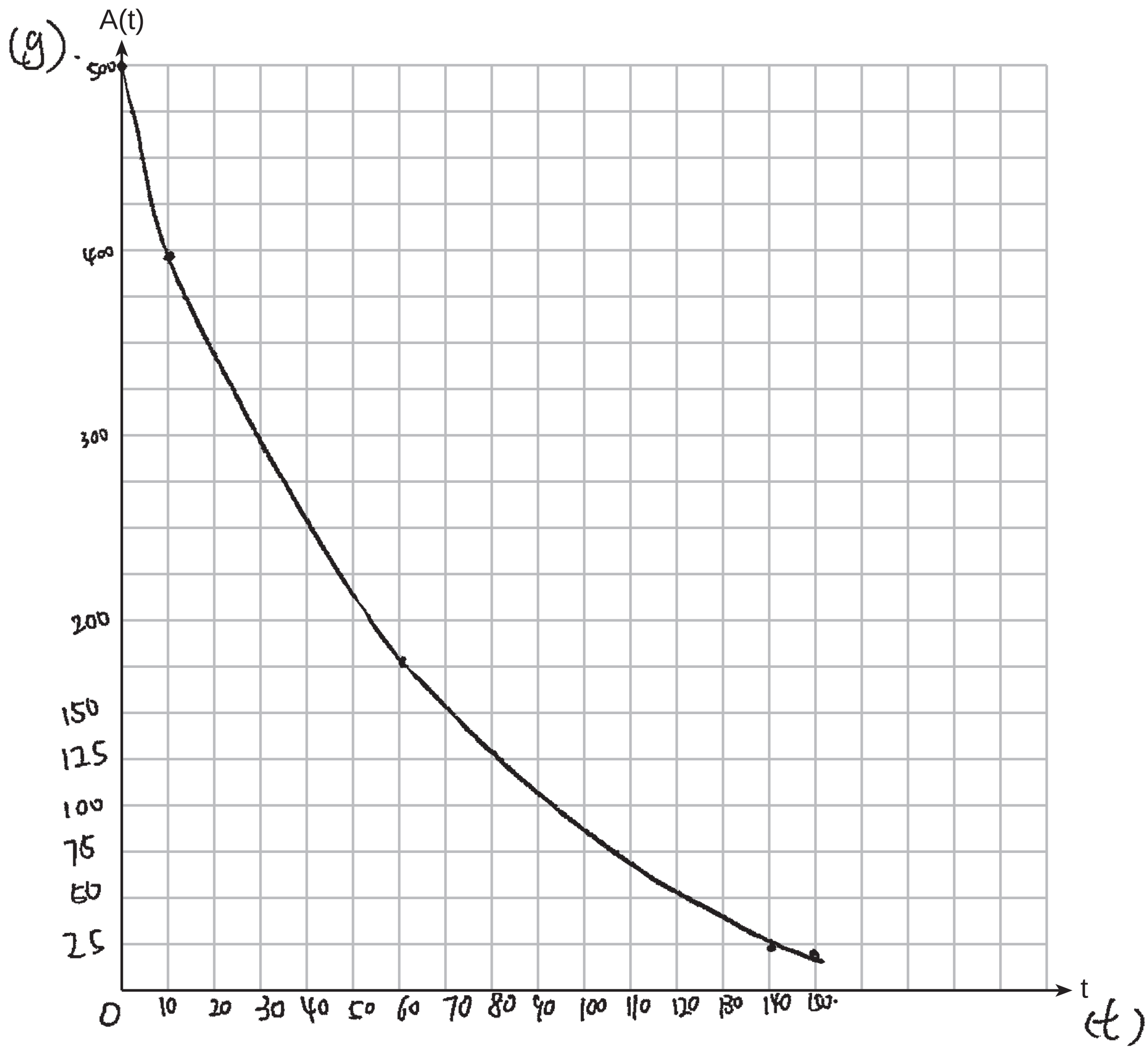
$A(t) = \dfrac{500}{e^{0.023t}}.$

Question 37 is continued on the next page.

Score 3: The student received credit for finding "k" and writing a correct function.

Question 37 continued

Graph $A(t)$ on the graph below from $t = 0$ to $t = 150$ years.



Use $A(t)$ to calculate the average rate of change in grams per year, from $t = 0$ to $t = 60$ years, to the *nearest tenth*.

$A(0) = 500 \times e^{-0.023 \times 0.}$
$= 500 \times 1$
$= 500$

$A(60) = 500 \times e^{-1.38}$
$= 500 \times 0.25$
$\approx 125.79.$

Explain what this value means in the given context.

Question 37

37 Cesium-137 decay can be modeled with the formula $A(t) = A_0e^{kt}$, where $A(t)$ represents the mass remaining in grams after t years and A_0 represents the initial mass. A sample of 500 grams of cesium-137 takes approximately 60.34 years to decay to 125 grams. Use this sample with the given formula to determine the constant k, to the *nearest thousandth*.

$$\frac{125}{500} = \frac{500e^{k(60.34)}}{500}$$

$$\ln .25 = \cancel{\ln e}^{k(60.34)}$$

$$-1.386 = \frac{k(60.34)}{60.34}$$

$$-0.0229 = k$$

Use this value for k to write a function, $A(t)$, that will find the mass of the 500-gram sample remaining after any amount of time, t, in years.

$$A(t) = 500e^{-.0229t}$$

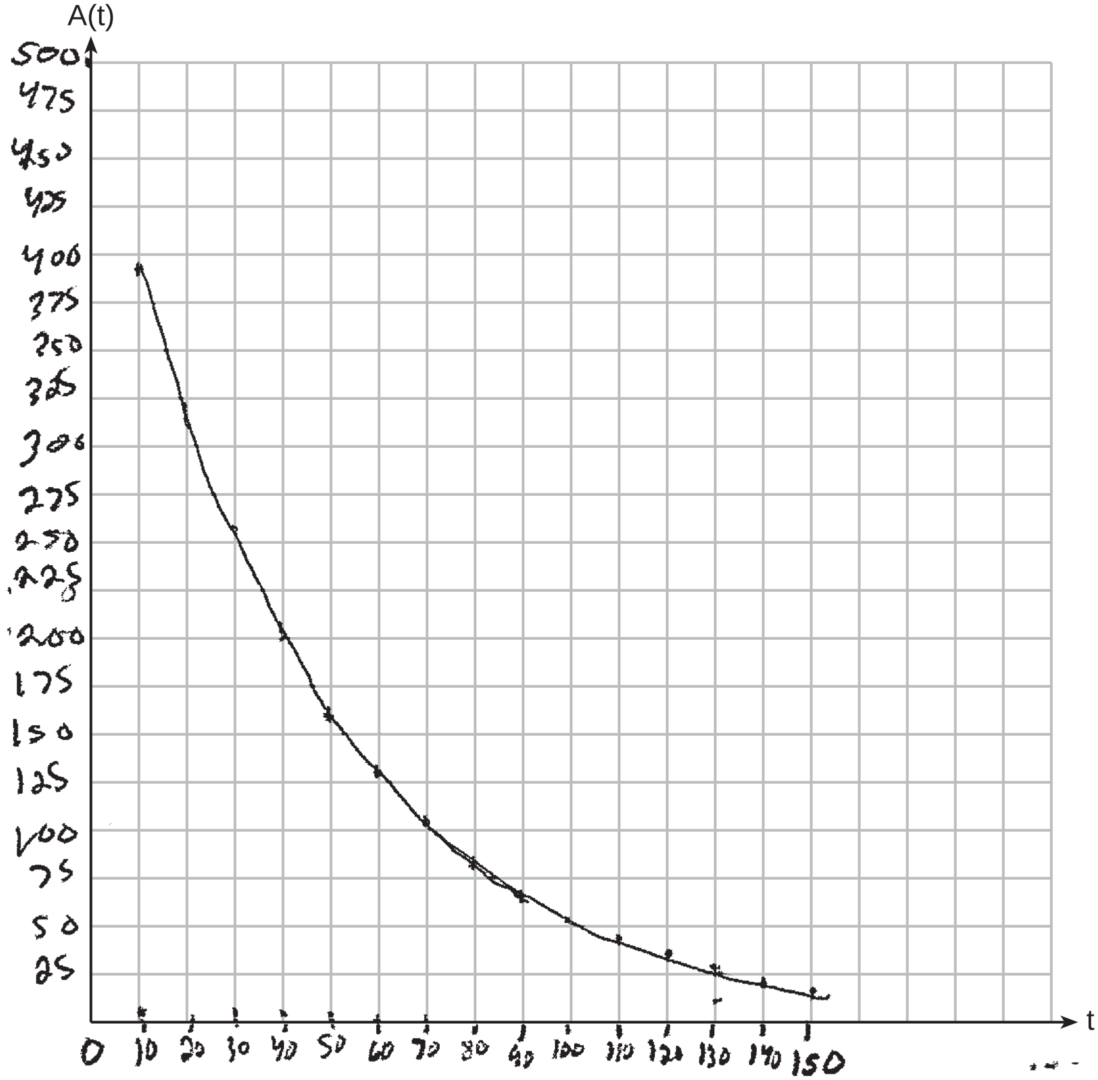
t = time in years

Question 37 is continued on the next page.

Score 3: The student made a rounding error, wrote a correct equation based on their "k" value, and found the correct average rate of change.

Question 37 continued

Graph $A(t)$ on the graph below from $t = 0$ to $t = 150$ years.



Use $A(t)$ to calculate the average rate of change in grams per year, from $t = 0$ to $t = 60$ years, to the *nearest tenth*.

500
126.55

-6.2

Explain what this value means in the given context.

how ~~most~~ many grams it decreases

Question 37

37 Cesium-137 decay can be modeled with the formula $A(t) = A_0e^{kt}$, where $A(t)$ represents the mass remaining in grams after t years and A_0 represents the initial mass. A sample of 500 grams of cesium-137 takes approximately 60.34 years to decay to 125 grams. Use this sample with the given formula to determine the constant k, to the *nearest thousandth*.

$A(t) = Ae^{kt}$

$\frac{125}{500} = \frac{500e^{k(60.34)}}{500}$

$0.25 = e^{k(60.34)}$

$\ln 0.25 = k(60.34)\cancel{\ln e}$

$\frac{\ln 0.25}{60.34} = \frac{k(60.34)}{60.34}$

$\boxed{k = -1.386}$

Use this value for k to write a function, $A(t)$, that will find the mass of the 500-gram sample remaining after any amount of time, t, in years.

$A(t) = A_0 e^{kt}$

$\boxed{A(t) = 500e^{-1.386t}}$

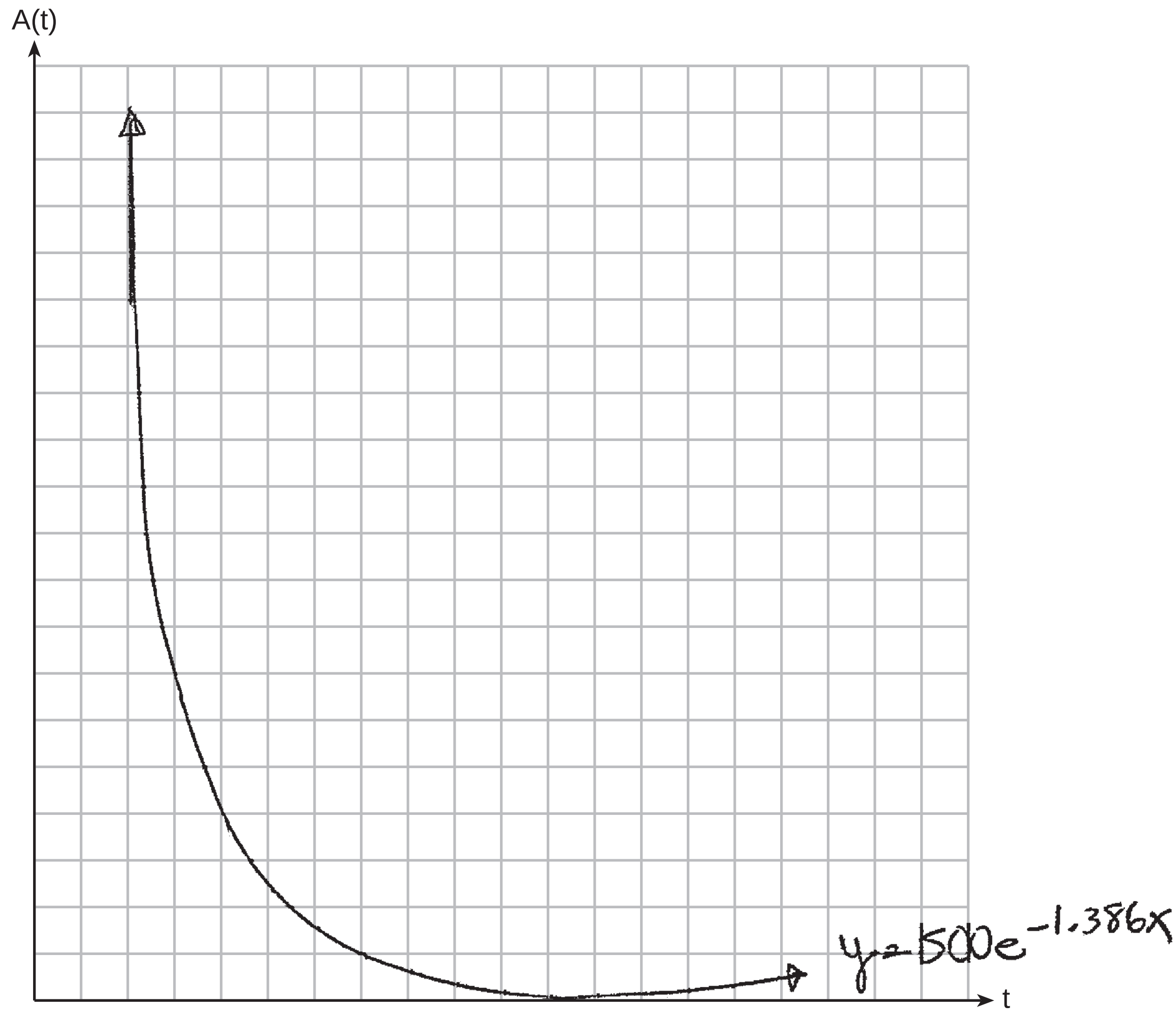
Question 37 is continued on the next page.

Score 2: The student made a calculation error finding "k" but wrote a correct equation based on their "k" value.

Question 37

Question 37 continued

Graph $A(t)$ on the graph below from $t = 0$ to $t = 150$ years.



Use $A(t)$ to calculate the average rate of change in grams per year, from $t = 0$ to $t = 60$ years, to the *nearest tenth*.

Explain what this value means in the given context.

The sample loses an average

of ___ grams.

37 Cesium-137 decay can be modeled with the formula $A(t) = A_0e^{kt}$, where $A(t)$ represents the mass remaining in grams after t years and A_0 represents the initial mass. A sample of 500 grams of cesium-137 takes approximately 60.34 years to decay to 125 grams. Use this sample with the given formula to determine the constant k, to the *nearest thousandth*.

$$\frac{125}{500} = \frac{500e^{60.34K}}{500}$$

$$.25 = e^{60.34K}$$

$$\frac{\ln .25}{60.34} = \frac{60.34K}{60.34}$$

$$\boxed{K = -0.0230}$$

Use this value for k to write a function, $A(t)$, that will find the mass of the 500-gram sample remaining after any amount of time, t, in years.

$$\frac{A(t)}{A_0} = \frac{A_0e^{kt}}{A_0}$$

$$\frac{A(t)}{A_0} = e^{Kt}$$

$$\frac{\ln\left(\frac{At}{A_0}\right)}{K} = t$$

$$\boxed{t = \frac{\ln\left(\frac{A(t)}{A_0}\right)}{K}}$$

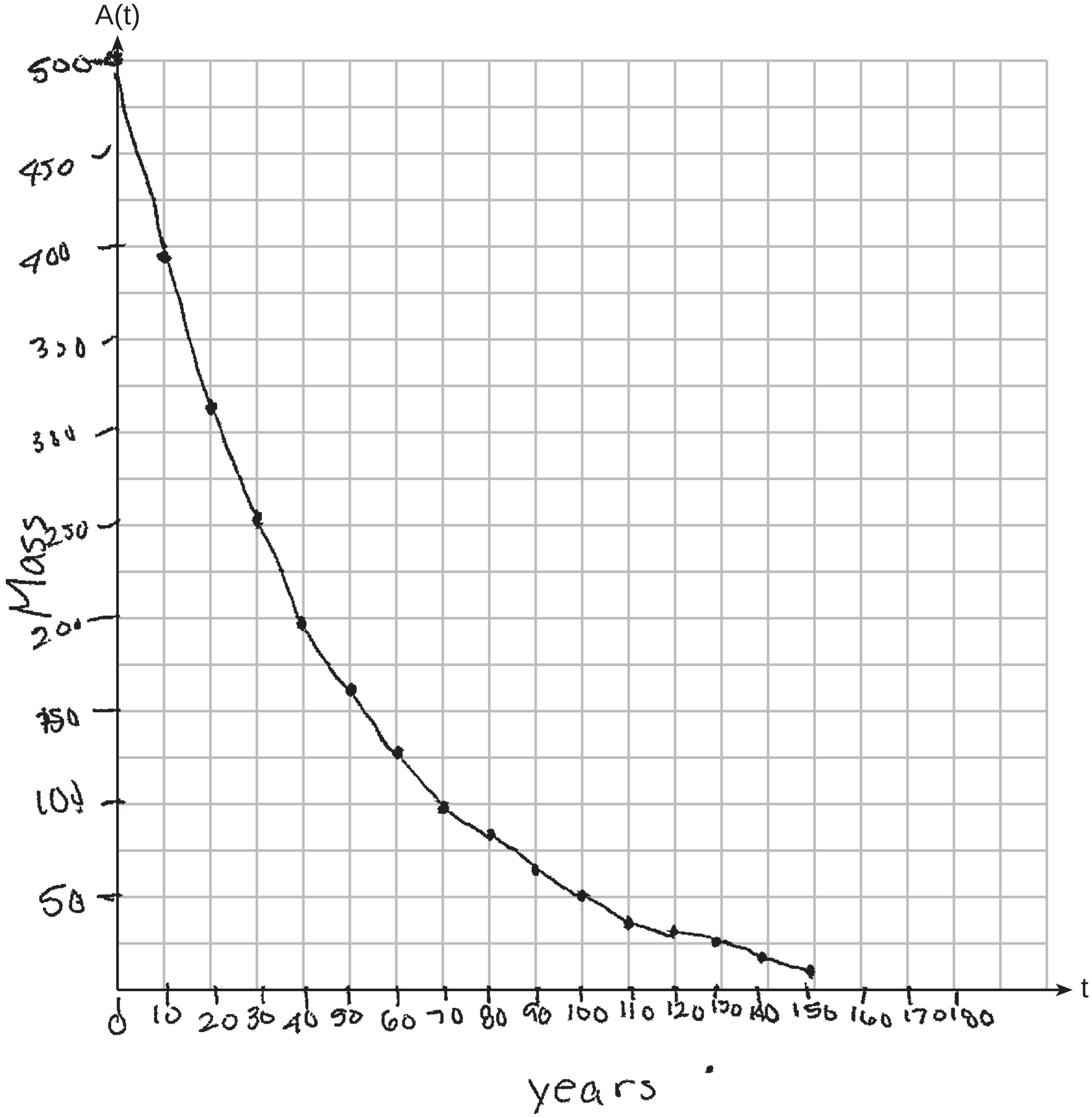
Question 37 is continued on the next page.

Score 2: The student made a rounding error solving for "*k*" and drew a correct graph.

Question 37

Question 37 continued

Graph $A(t)$ on the graph below from $t = 0$ to $t = 150$ years.



Use $A(t)$ to calculate the average rate of change in grams per year, from $t = 0$ to $t = 60$ years, to the *nearest tenth*.

Explain what this value means in the given context.

Question 37

37 Cesium-137 decay can be modeled with the formula $A(t) = A_0e^{kt}$, where $A(t)$ represents the mass remaining in grams after t years and A_0 represents the initial mass. A sample of 500 grams of cesium-137 takes approximately 60.34 years to decay to 125 grams. Use this sample with the given formula to determine the constant k, to the *nearest thousandth*.

$$\frac{125}{500} = \frac{500e^{k(60.34)}}{500}$$

$$0.25 = e^{k60.34}$$

$$\ln 0.25 = k(60.34$$

$$-1.38629 = k(60.34)$$

$$k = -0.022975$$

$$\boxed{k = -0.022}$$

Use this value for k to write a function, $A(t)$, that will find the mass of the 500-gram sample remaining after any amount of time, t, in years.

$$A(t) = A_0e^{-0.022t}$$

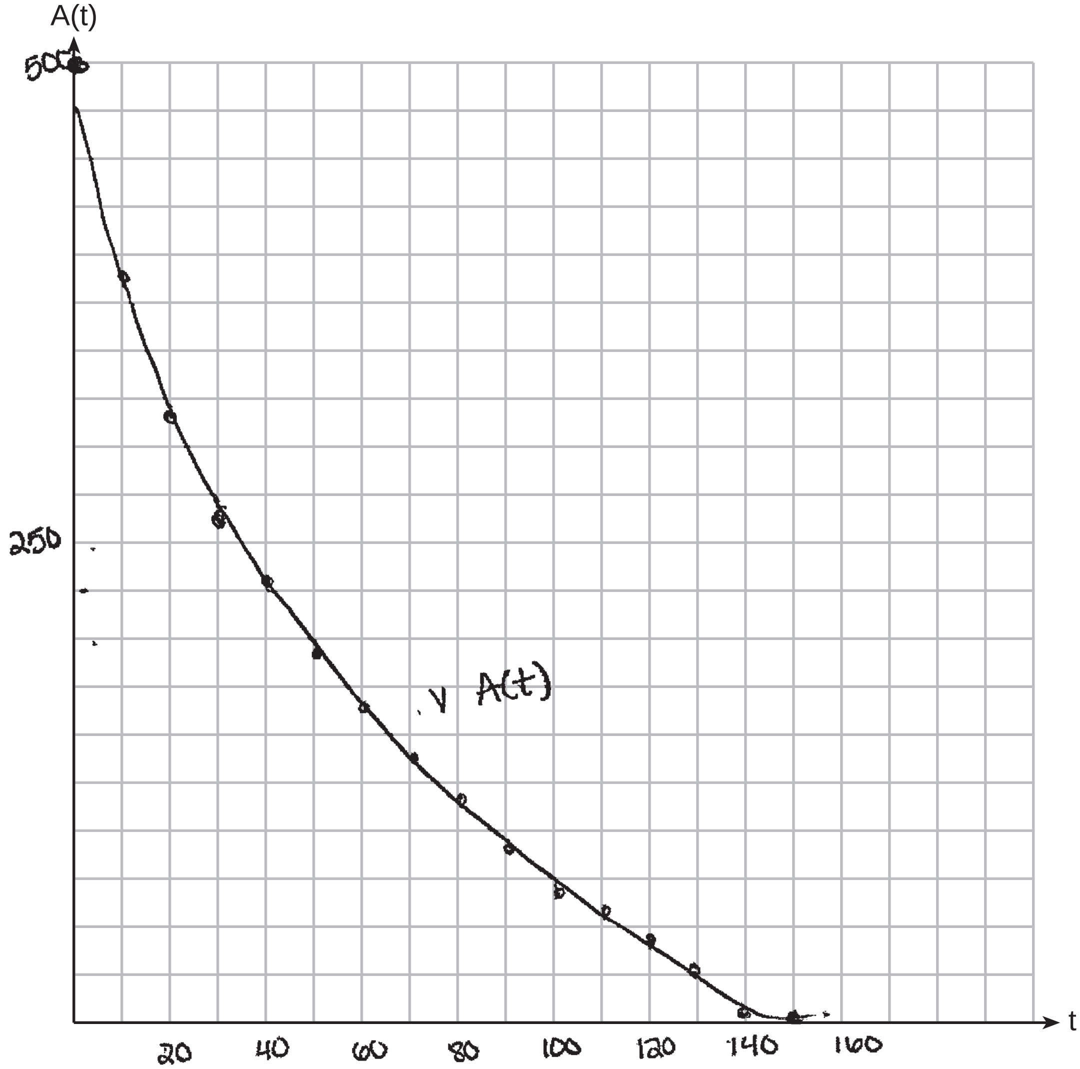
Question 37 is continued on the next page.

Score 1: The student earned one point for showing correct work to find "k" but made a rounding error stating the value.

Question 37

Question 37 continued

Graph $A(t)$ on the graph below from $t = 0$ to $t = 150$ years.



Use $A(t)$ to calculate the average rate of change in grams per year, from $t = 0$ to $t = 60$ years, to the *nearest tenth*.

$$\left| \frac{133.568 - 500}{60 - 0} \right| = \left| -6.1072 \right|$$

Explain what this value means in the given context.

it's decreasing

Question 37

37 Cesium-137 decay can be modeled with the formula $A(t) = A_0e^{kt}$, where $A(t)$ represents the mass remaining in grams after t years and A_0 represents the initial mass. A sample of 500 grams of cesium-137 takes approximately 60.34 years to decay to 125 grams. Use this sample with the given formula to determine the constant k, to the *nearest thousandth*.

$A(t) = A_0e^{kt}$

$\frac{125}{500} = \frac{500e^{k \cdot 125}}{500}$

$\log_e \frac{1}{4} = 125k$ ~~$\log e$~~

$\frac{-.60206}{125} = \frac{125k}{125}$

$k = -.006$

$\frac{1}{4} = e^{k \cdot 125}$

~~$\log \frac{1}{4} = \log 125k$~~

$125 = 500(e)^{-.006 \cdot 60.34}$

Use this value for k to write a function, $A(t)$, that will find the mass of the 500-gram sample remaining after any amount of time, t, in years.

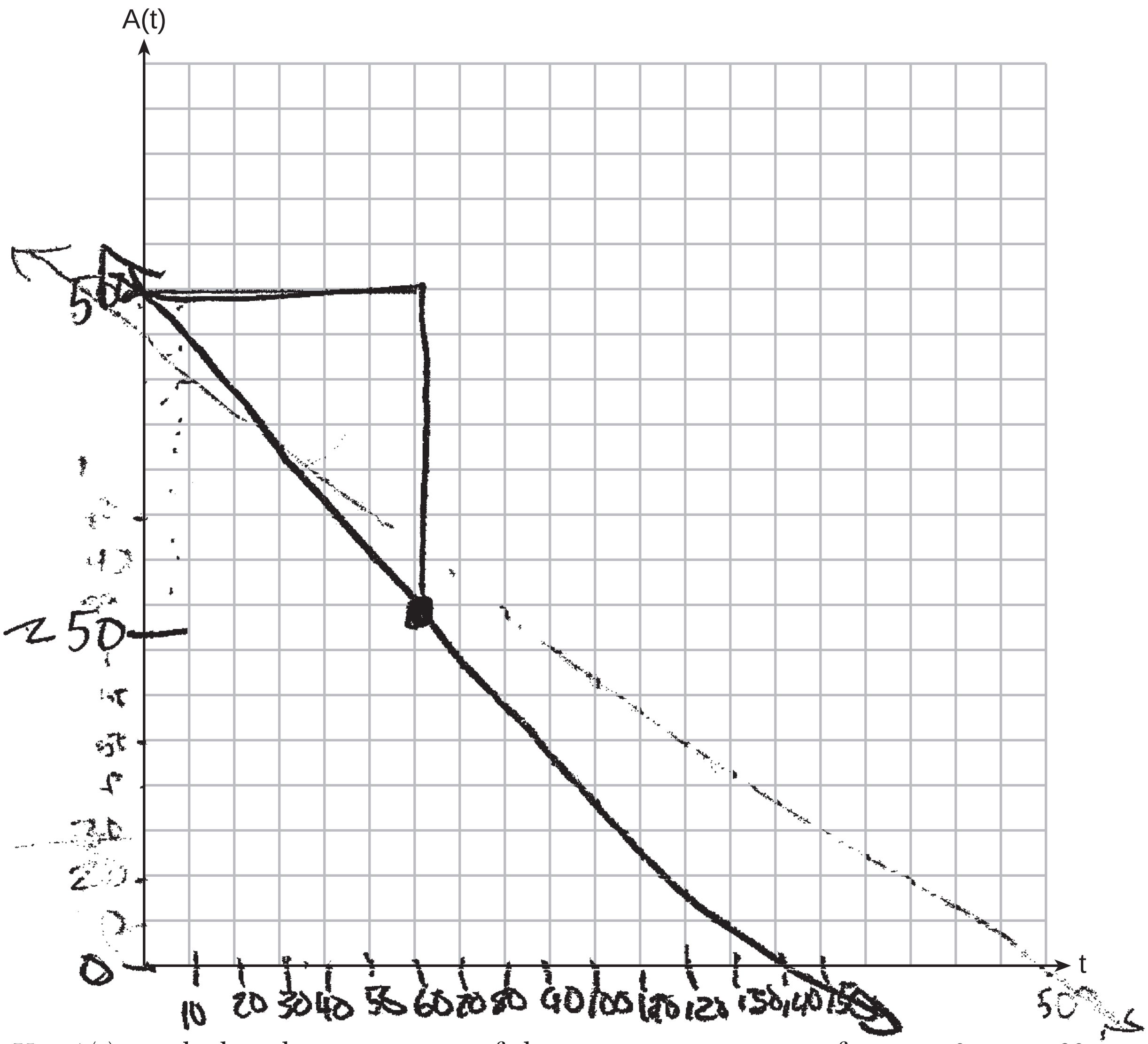
$A(t) = 500e^{-.006t}$

Question 37 is continued on the next page.

Score 1: The student earned credit for the function written using the incorrect value of "k."

Question 37 continued

Graph $A(t)$ on the graph below from $t = 0$ to $t = 150$ years.



Use $A(t)$ to calculate the average rate of change in grams per year, from $t = 0$ to $t = 60$ years, to the *nearest tenth*.

$500 \cdot e^{.006 \cdot 0}$

$\frac{0}{500}$

$(60, 348.838)$

$(0, 500)$

$500 \cdot e^{-.006 \cdot 60}$

-151.2

$\frac{60-0}{348.838-500}$ $\frac{60}{-151.162}$

Explain what this value means in the given context.

This means that over the course of those 60 years the mass decreases

Question 37

37 Cesium-137 decay can be modeled with the formula $A(t) = A_0e^{kt}$, where $A(t)$ represents the mass remaining in grams after t years and A_0 represents the initial mass. A sample of 500 grams of cesium-137 takes approximately 60.34 years to decay to 125 grams. Use this sample with the given formula to determine the constant k, to the *nearest thousandth*.

$$\frac{125}{500} = \frac{500e^{k(60.34)}}{500}$$

$$.25 = e^{k(60.34)}$$

$$\frac{\ln .25}{60.34\ln} = \frac{k(60.34)\ln}{60.34\ln} \qquad k = -.34$$

Use this value for k to write a function, $A(t)$, that will find the mass of the 500-gram sample remaining after any amount of time, t, in years.

$$500e^{-.34(t)}$$

Question 37 is continued on the next page.

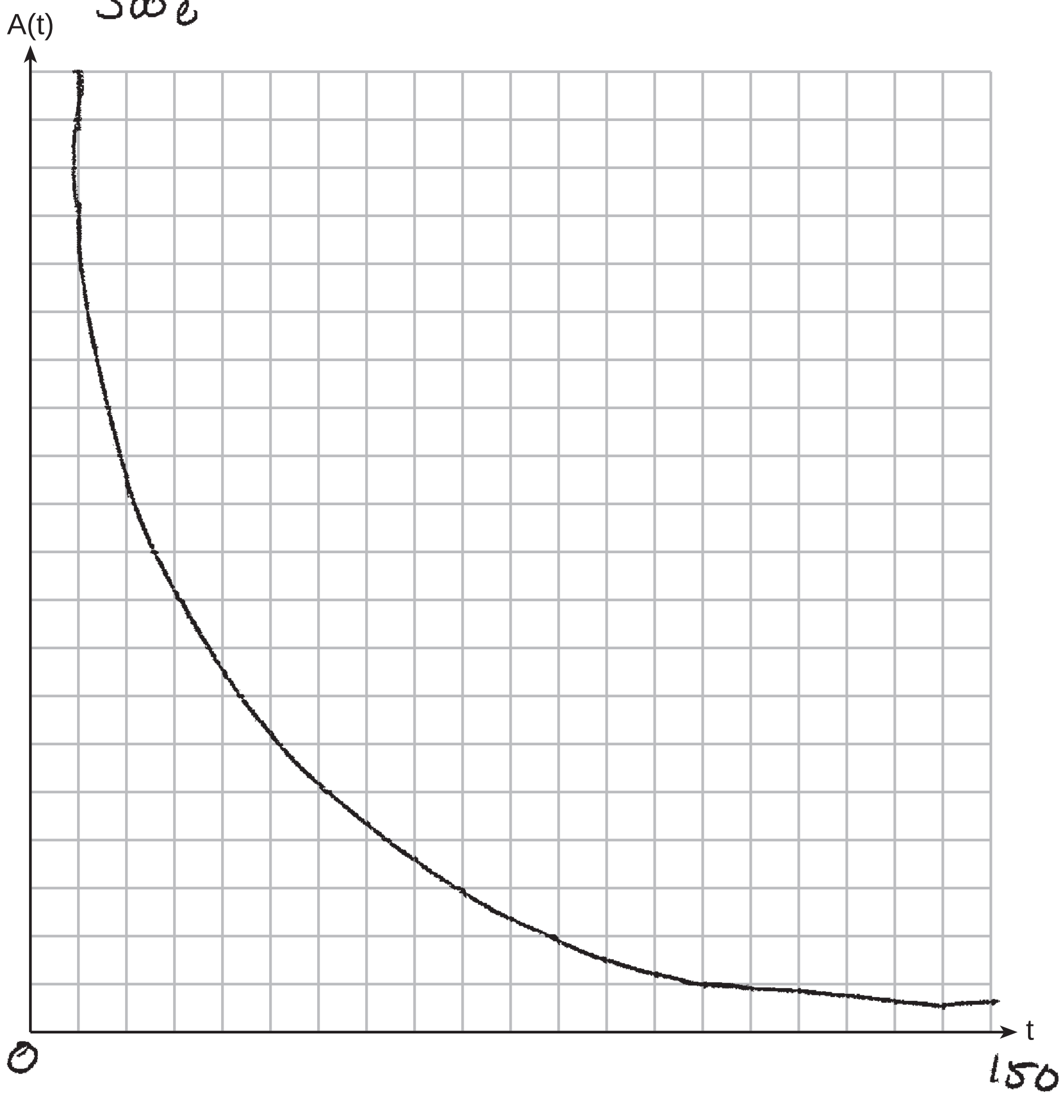
Score 0: The student did not satisfy the criteria for one or more credits.

Question 37

Question 37 continued

Graph $A(t)$ on the graph below from $t = 0$ to $t = 150$ years.

$500e^{-.234(t)}$



Use $A(t)$ to calculate the average rate of change in grams per year, from $t = 0$ to $t = 60$ years, to the *nearest tenth*.

$t(0) = 500$
$t(60) = 6.9 \times 10^{-7}$

$\frac{6.9 \times 10^{-7}}{500} = 1.38 \times 10^{-9}$
$= 1.4 \times 10^{-9}$

Explain what this value means in the given context.

This represents how much the cesium-137 is decaying

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

Regents Examination in Algebra II – June 2025

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

(Use for the June 2025 exam only.)

Raw Score	Scale Score	Performance Level
86	**100**	5
85	**99**	5
84	**98**	5
83	**97**	5
82	**96**	5
81	**95**	5
80	**94**	5
79	**93**	5
78	**92**	5
77	**91**	5
76	**91**	5
75	**90**	5
74	**89**	5
73	**89**	5
72	**88**	5
71	**87**	5
70	**87**	5
69	**86**	5
68	**86**	5
67	**85**	5
66	**84**	4
65	**84**	4
64	**84**	4
63	**83**	4
62	**83**	4
61	**82**	4
60	**82**	4
59	**81**	4
58	**81**	4

Raw Score	Scale Score	Performance Level
57	**81**	4
56	**80**	4
55	**80**	4
54	**80**	4
53	**79**	4
52	**79**	4
51	**79**	4
50	**78**	4
49	**78**	4
48	**77**	3
47	**77**	3
46	**77**	3
45	**76**	3
44	**76**	3
43	**76**	3
42	**75**	3
41	**75**	3
40	**74**	3
39	**74**	3
38	**73**	3
37	**72**	3
36	**72**	3
35	**71**	3
34	**70**	3
33	**70**	3
32	**69**	3
31	**68**	3
30	**67**	3
29	**66**	3

Raw Score	Scale Score	Performance Level
28	**65**	3
27	**64**	2
26	**63**	2
25	**62**	2
24	**60**	2
23	**59**	2
22	**57**	2
21	**55**	2
20	**54**	1
19	**53**	1
18	**51**	1
17	**49**	1
16	**47**	1
15	**45**	1
14	**43**	1
13	**40**	1
12	**38**	1
11	**35**	1
10	**33**	1
9	**30**	1
8	**27**	1
7	**24**	1
6	**21**	1
5	**18**	1
4	**14**	1
3	**11**	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 II.