The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

MATHEMATICS A

Wednesday, June 16, 2004 — 1:15 to 4:15 p.m., only

Print Your Name:

Print Your School's Name:

Print your name and the name of your school in the boxes above. Then turn to the last page of this booklet, which is the answer sheet for Part I. Fold the last page along the perforations and, slowly and carefully, tear off the answer sheet. Then fill in the heading of your answer sheet.

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. Any work done on this sheet of scrap graph paper will *not* be scored. All work should be written in pen, except graphs and drawings, which should be done in pencil.

This examination has four parts, with a total of 39 questions. You must answer all questions in this examination. Write 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. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc.

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 minimum of a scientific calculator, a straightedge (ruler), and a compass must be available for your use while taking this examination.

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

Part I

Answer all questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed. For each question, write on the separate answer sheet the numeral preceding the word or expression that best completes the statement or answers the question. [60]

1 The test scores for 10 students in Ms. Sampson's homeroom were 61, 67, 81, 83, 87, 88, 89, 90, 98, and 100. Which frequency table is accurate for this set of data?

Interval	Frequency
61–70	2
71–80	2
81–90	7
91–100	10

(1)

Interval	Frequency
61–70	2
71–80	0
81–90	8
91–100	10

(3)

Interval	Frequency
61–70	2
71–80	2
81–90	8
91–100	10

(2)

Interval	Frequency
61–70	2
71–80	0
81–90	6
91–100	2

(4)

2 What is the image of (x,y) after a translation of 3 units right and 7 units down?

(1) $(x + 3, y - 7)$ (3) $(x - 3, y - 7)$
(2) $(x + 3, y + 7)$ (4) $(x - 3, y + 7)$

3 How many different outfits consisting of a hat, a pair of slacks, and a sweater can be made from two hats, three pairs of slacks, and four sweaters?

(1) 9   (3) 24
(2) 12   (4) 29

4 If $3(x - 2) = 2x + 6$, the value of x is

(1) 0   (3) 12
(2) 5   (4) 20

5 Which statement is logically equivalent to "If a triangle is an isosceles triangle, then it has two congruent sides"?

(1) If a triangle does not have two congruent sides, then it is an isosceles triangle.

(2) If a triangle does not have two congruent sides, then it is not an isosceles triangle.

(3) If a triangle is not an isosceles triangle, then it has two congruent sides.

(4) If a triangle is an isosceles triangle, then it does not have two congruent sides.

6 Parking charges at Superior Parking Garage are \$5.00 for the first hour and \$1.50 for each additional 30 minutes. If Margo has \$12.50, what is the maximum amount of time she will be able to park her car at the garage?

(1) $2\frac{1}{2}$ hours   (3) 6 hours

(2) $3\frac{1}{2}$ hours   (4) $6\frac{1}{2}$ hours

7 If the temperature in Buffalo is 23° Fahrenheit, what is the temperature in degrees Celsius? [Use the formula $C = \frac{5}{9}(F - 32)$.]

(1) –5   (3) –45

(2) 5   (4) 45

8 Tara buys two items that cost d dollars each. She gives the cashier \$20. Which expression represents the change she should receive?

(1) $20 - 2d$ (3) $20 + 2d$

(2) $20 - d$ (4) $2d - 20$

9 At the beginning of her mathematics class, Mrs. Reno gives a warm-up problem. She says, "I am thinking of a number such that 6 less than the product of 7 and this number is 85." Which number is she thinking of?

(1) $11\frac{2}{7}$ (3) 84

(2) 13   (4) 637

10 Which type of transformation is illustrated in the accompanying diagram?
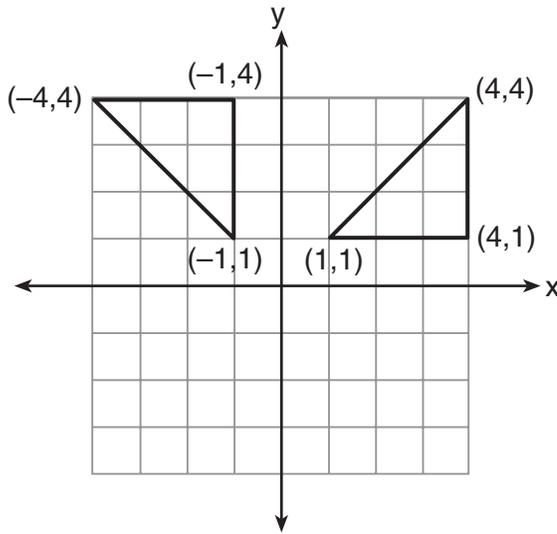
(1) dilation   (3) translation
(2) reflection   (4) rotation

11 Delroy's sailboat has two sails that are similar triangles. The larger sail has sides of 10 feet, 24 feet, and 26 feet. If the shortest side of the smaller sail measures 6 feet, what is the perimeter of the *smaller* sail?

(1) 15 ft   (3) 60 ft
(2) 36 ft   (4) 100 ft

12 What is the least common denominator of $\frac{1}{2}$, $\frac{2}{7x}$, and $\frac{5}{x}$?

(1) $9x$ (3) $14x$
(2) $2x$ (4) $14x^2$

13 Which property of real numbers is illustrated by the equation
$-\sqrt{3} + \sqrt{3} = 0$?

(1) additive identity
(2) commutative property of addition
(3) associative property of addition
(4) additive inverse

14 The ratio of two supplementary angles is 2:7. What is the measure of the *smaller* angle?

(1) 10°   (3) 20°
(2) 14°   (4) 40°

15 Mary chooses an integer at random from 1 to 6. What is the probability that the integer she chooses is a prime number?

(1) $\frac{5}{6}$ (3) $\frac{2}{6}$

(2) $\frac{3}{6}$ (4) $\frac{4}{6}$

16 The statement "x is *not* the square of an integer and x is a multiple of 3" is true when x is equal to

(1) 9   (3) 32
(2) 18   (4) 36

17 Which phrase does *not* describe a triangle?

(1) acute scalene
(2) isosceles right
(3) equilateral equiangular
(4) obtuse right

18 The number of people on the school board is represented by x. Two sub-committees with an equal number of members are formed, one with $\frac{2}{3}x - 5$ members and the other with $\frac{x}{4}$ members. How many people are on the school board?

(1) 20   (3) 8
(2) 12   (4) 4

19 The angle of elevation from a point 25 feet from the base of a tree on level ground to the top of the tree is 30°. Which equation can be used to find the height of the tree?

(1) $\tan 30° = \dfrac{x}{25}$ (3) $\sin 30° = \dfrac{x}{25}$

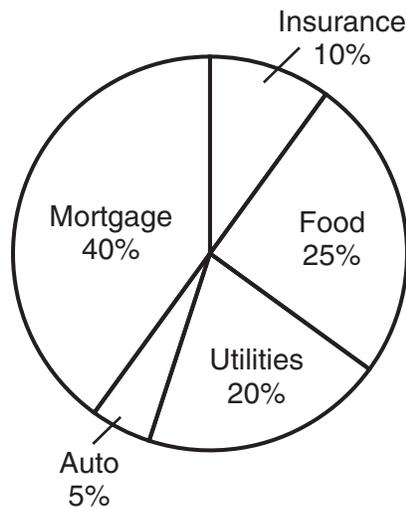(2) $\cos 30° = \dfrac{x}{25}$ (4) $30^2 + 25^2 = x^2$

20 Rashawn bought a CD that cost $18.99 and paid $20.51, including sales tax. What was the rate of the sales tax?

(1) 5%   (3) 3%

(2) 2%   (4) 8%

21 If $3x$ is one factor of $3x^2 - 9x$, what is the other factor?

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

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

22 The accompanying circle graph shows how the Marino family spends its income each month.

What is the measure, in degrees, of the central angle that represents the percentage of income spent on food?

(1) 25   (3) 90

(2) 50   (4) 360

23 Melissa is walking around the outside of a building that is in the shape of a regular polygon. She determines that the measure of one exterior angle of the building is 60°. How many sides does the building have?

(1) 6   (3) 3

(2) 9   (4) 12

24 Which expression is an example of the associative property?

(1) $(x + y) + z = x + (y + z)$

(2) $x + y + z = z + y + x$

(3) $x(y + z) = xy + xz$

(4) $x \bullet 1 = x$

25 A farmer has a rectangular field that measures 100 feet by 150 feet. He plans to increase the area of the field by 20%. He will do this by increasing the length and width by the same amount, x. Which equation represents the area of the new field?

(1) $(100 + 2x)(150 + x) = 18,000$

(2) $2(100 + x) + 2(150 + x) = 15,000$

(3) $(100 + x)(150 + x) = 18,000$

(4) $(100 + x)(150 + x) = 15,000$

26 In a game, each player receives 5 cards from a deck of 52 different cards. How many different groupings of cards are possible in this game?

(1) $_{52}P_5$ (3) $\dfrac{52!}{5!}$

(2) $_{52}C_5$ (4) $5!$

27 A box in the shape of a cube has a volume of 64 cubic inches. What is the length of a side of the box?

(1) $21.\overline{3}$ in   (3) 8 in

(2) 16 in   (4) 4 in

28 The line $3x - 2y = 12$ has

(1) a slope of $\frac{3}{2}$ and a y-intercept of –6

(2) a slope of $-\frac{3}{2}$ and a y-intercept of 6

(3) a slope of 3 and a y-intercept of –2

(4) a slope of –3 and a y-intercept of –6

29 If the mass of a proton is 1.67×10^{-24} gram, what is the mass of 1,000 protons?

(1) 1.67×10^{-27} g   (3) 1.67×10^{-22} g

(2) 1.67×10^{-23} g   (4) 1.67×10^{-21} g

30 If $(x - 4)$ is a factor of $x^2 - x - w = 0$, then the value of w is

(1) 12   (3) 3

(2) –12   (4) –3

Part II

Answer all questions in this part. Each correct answer will receive 2 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [10]

31 In the accompanying diagram of △BCD, m∠C = 70, m∠CDE = 130, and side $\overline{BD}$ is extended to A and to E. Find m∠CBA.
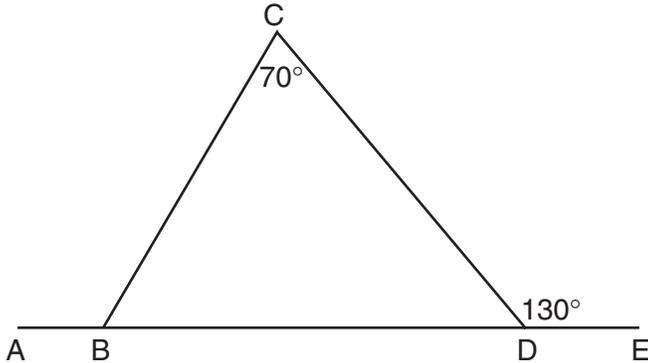
32 Brett was given the problem: "Evaluate $2x^2 + 5$ when $x = 3$." Brett wrote that the answer was 41. Was Brett correct? Explain your answer.

33 Kyoko's mathematics teacher gave her the accompanying cards and asked her to arrange the cards in order from least to greatest. In what order should Kyoko arrange the cards?

$$\boxed{\pi} \quad \boxed{\sqrt{8}} \quad \boxed{3.\overline{1}} \quad \boxed{2\sqrt{3}} \quad \boxed{2\tfrac{4}{5}}$$

34 The coordinates of the midpoint of $\overline{AB}$ are (2,4), and the coordinates of point B are (3,7). What are the coordinates of point A? [The use of the accompanying grid is optional.]
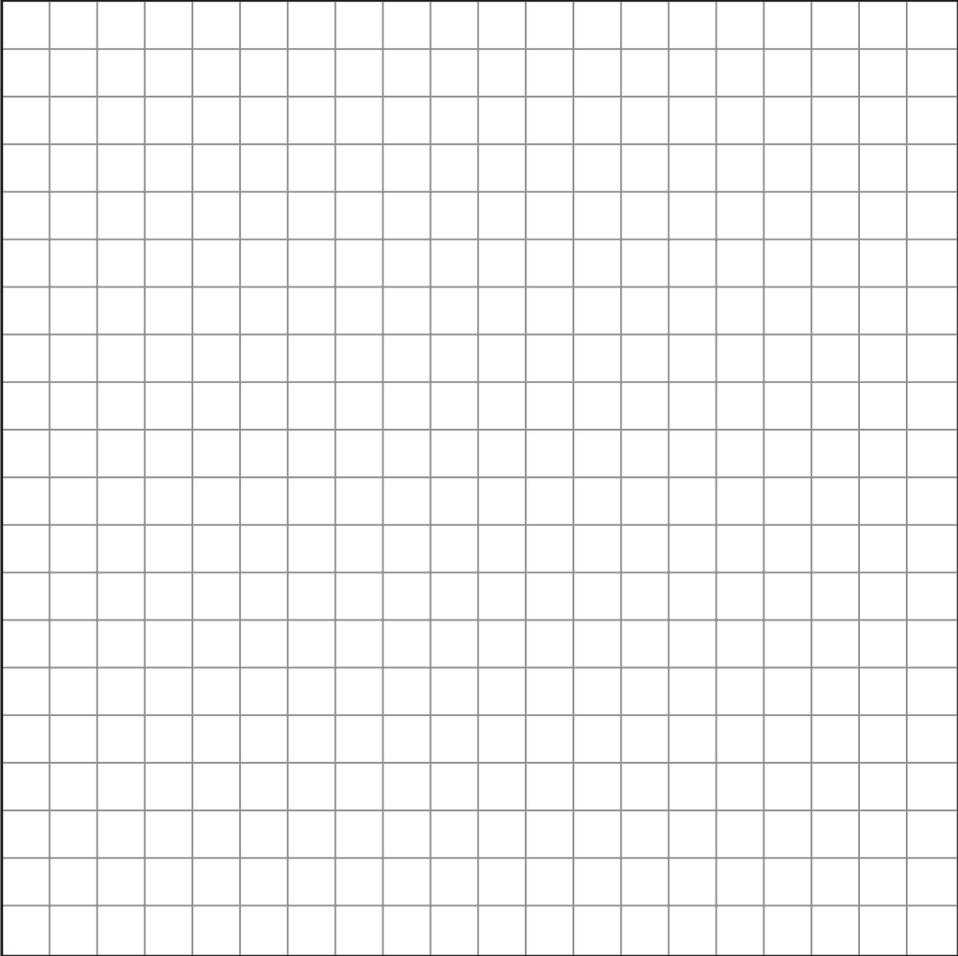
35 Using only a compass and a straightedge, construct the perpendicular bisector of $\overline{AB}$ and label it c. [Leave all construction marks.]

A———————————————B

Part III

Answer all questions in this part. Each correct answer will receive 3 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit.   [6]

36 The senior class at South High School consists of 250 students. Of these students, 130 have brown hair, 160 have brown eyes, and 90 have both brown hair and brown eyes. How many members of the senior class have *neither* brown hair *nor* brown eyes?

37 Express both the perimeter and the area of the rectangle shown in the accompanying diagram as polynomials in simplest form.
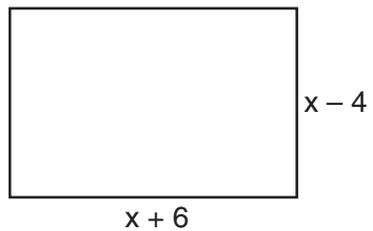
$$x - 4$$

$$x + 6$$

Part IV

Answer all questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [8]

38 On the first six tests in her social studies course, Jerelyn's scores were 92, 78, 86, 92, 95, and 91. Determine the median and the mode of her scores. If Jerelyn took a seventh test and raised the mean of her scores *exactly* 1 point, what was her score on the seventh test?

39 Solve the following system of equations algebraically or graphically:

$$x^2 + y^2 = 25$$
$$3y - 4x = 0$$

[The use of the accompanying grid is optional.]
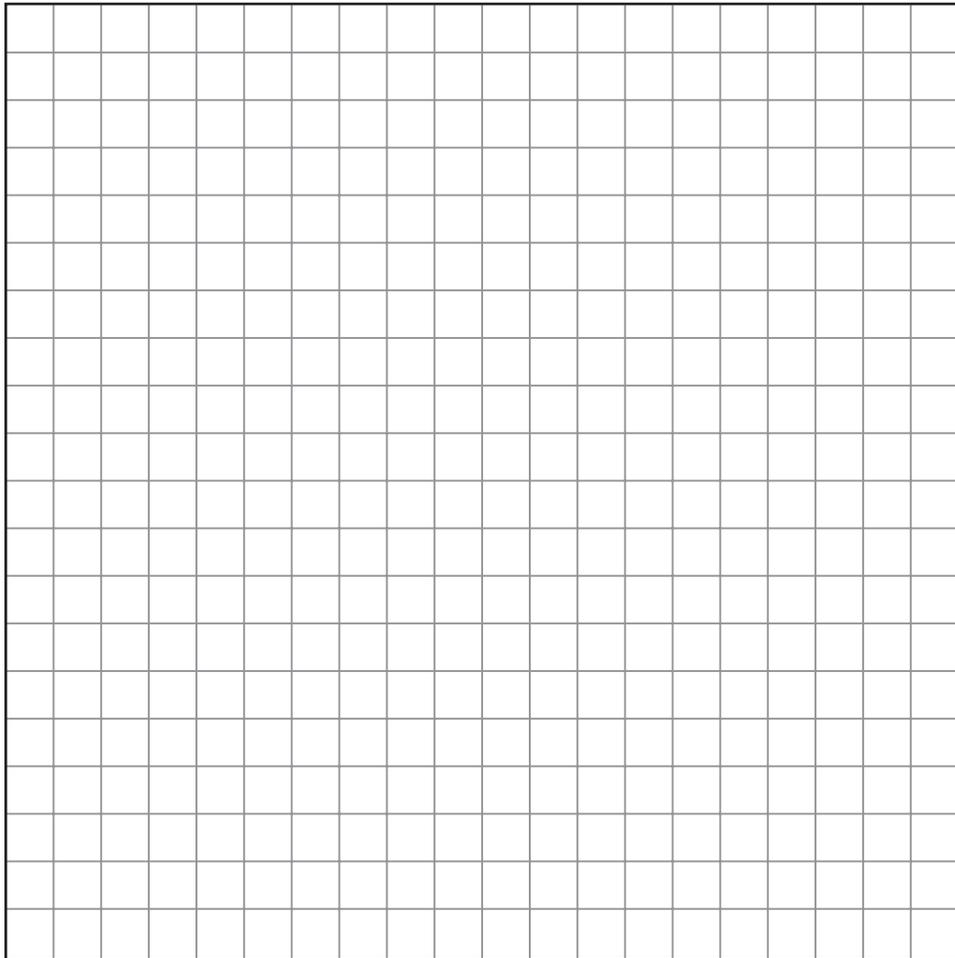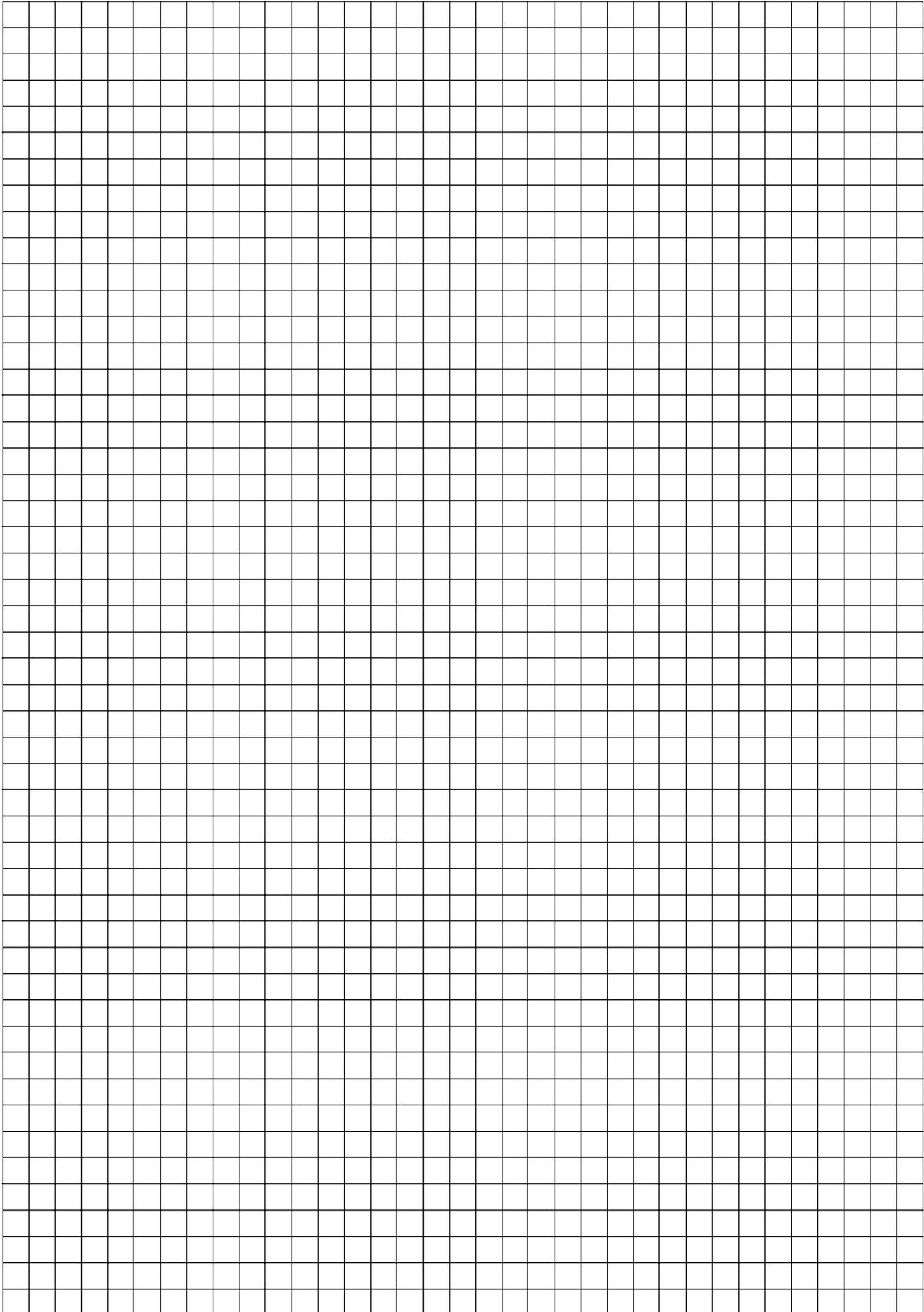
MATHEMATICS A

Wednesday, June 16, 2004 — 1:15 to 4:15 p.m., only

ANSWER SHEET

Student .... Sex: ☐ Male ☐ Female Grade ....

Teacher .... School ....

Your answers to Part I should be recorded on this answer sheet.

Part I

Answer all 30 questions in this part.

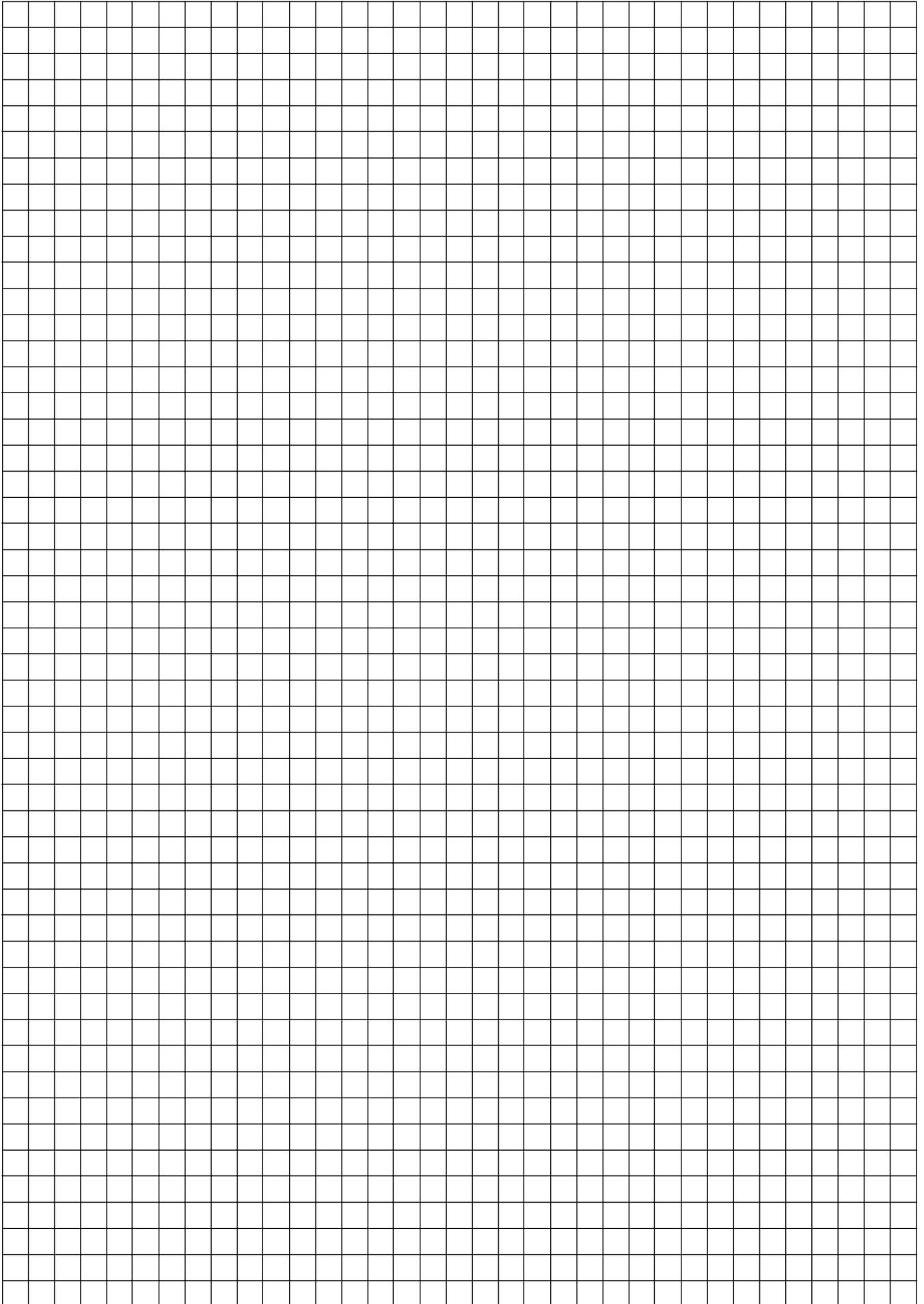|			
1	9	17	25 ....
2	10	18	26 ....
3	11	19	27 ....
4	12	20	28 ....
5	13	21	29 ....
6	14	22	30 ....
7	15	23	
8	16	24	

Your answers for Parts II, III, and IV should be written in the test booklet.

The declaration below should be signed when you have completed the examination.

I do hereby affirm, at the close of this examination, that I had no unlawful knowledge of the questions or answers prior to the examination and that I have neither given nor received assistance in answering any of the questions during the examination.

_____

Signature

MATHEMATICS A			
Question	Maximum Credit	Credits Earned	Rater's/Scorer's Initials
Part I 1–30	60		
Part II 31	2		
32	2		
33	2		
34	2		
35	2		
Part III 36	3		
37	3		
Part IV 38	4		
39	4		
Maximum Total	84		

Total Raw Score   **Checked by**   **Scaled Score**

Rater's/Scorer's Name (minimum of three)

Notes to raters. . .

- **Each paper should be scored by a minimum of three raters.**
- **The table for converting the total raw score to the scaled score is provided in the scoring key for this examination.**
- **The scaled score is the student's final examination score.**

FOR TEACHERS ONLY

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

MATHEMATICS A

Wednesday, June 16, 2004 — 1:15 to 4:15 p.m., only

SCORING KEY

Mechanics of Rating

The following procedures are to be followed for scoring student answer papers for the Mathematics A examination. More detailed information about scoring is provided in the publication *Information Booklet for Administering and Scoring the Regents Examinations in Mathematics A and Mathematics B*.

Use only *red* ink or *red* pencil in rating Regents papers. Do *not* attempt to correct the student's work by making insertions or changes of any kind. Use checkmarks 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. On the back of the student's detachable answer sheet, raters must enter their initials in the boxes next to the questions they have scored and also write their name in the box under the heading "Rater's/Scorer's Name."

Raters should record the student's scores for all questions and the total raw score on the student's detachable answer sheet. Then the student's total raw score should be converted to a scaled score by using the conversion chart that will be posted on the Department's web site http://www.emsc.nysed.gov/osa/ on Wednesday, June 16, 2004. The student's scaled score should be entered in the box provided on the student's detachable answer sheet. The scaled score is the student's final examination score.

Part I

Allow a total of 60 credits, 2 credits for each of the following. Allow credit if the student has written the correct answer instead of the numeral 1, 2, 3, or 4.

(1) 4	(6) 2	(11) 2	(16) 2	(21) 3	(26) 2
(2) 1	(7) 1	(12) 3	(17) 4	(22) 3	(27) 4
(3) 3	(8) 1	(13) 4	(18) 2	(23) 1	(28) 1
(4) 3	(9) 2	(14) 4	(19) 1	(24) 1	(29) 4
(5) 2	(10) 4	(15) 2	(20) 4	(25) 3	(30) 1

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. Visit the site http://www.emsc.nysed.gov/osa/ and select the link "Latest Information" for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and at least one more time before the final scores for the examination are recorded.

General Rules for Applying Mathematics Rubrics

I. General Principles for Rating

The rubrics for the constructed-response questions on the Regents Examinations in Mathematics A and Mathematics B 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 Administering and Scoring Examinations in Mathematics A and Mathematics B*, use their own professional judgment, confer with other mathematics teachers, and/or contact the consultants at 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, 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 any response. 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. A response with one conceptual error can receive no more than half credit.

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.

If a response shows two (or more) different major conceptual errors, it should be considered completely incorrect and receive no credit.

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: i.e., awarding half credit for the conceptual error and deducting 1 credit for each mechanical error (maximum of two deductions for mechanical errors).

Part II

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

(31)   **[2]** 120, and appropriate work is shown, such as m∠*CDB* = 180 – 130 = 50 and m∠*CBA* = 70 + 50 = 120 or correctly labeled angles in a diagram.

　　[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] m∠*CBD* = 60 is found, but no further correct work is shown.

or

　　[1] 120, but no work is shown.

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

(32)   **[2]** No, and an appropriate explanation is given or the expression is evaluated correctly.

　　[1] No, and the correct order of operations is used to evaluate $2(3)^2 + 5$, but one computational error is made.

or

　　[1] One conceptual error is made in evaluating the expression, but the question is answered appropriately.

or

　　[1] Appropriate work is shown, but the question is not answered.

　　[0] No, but no explanation or an inappropriate explanation is given.

or

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

[OVER]

(33) **[2]** $2\frac{4}{5}, \sqrt{8}, 3.\bar{1}, \pi, 2\sqrt{3},$ and appropriate work is shown, such as converting each value to a decimal equivalent.

[1] All values are correctly converted to decimal equivalents, but the order is not indicated or is indicated incorrectly.

or

[1] One or two computational errors are made in finding decimal equivalents, but the appropriate order is indicated.

or

[1] Appropriate work is shown, but one conceptual error is made, such as indicating the order from greatest to least.

or

[1] $2\frac{4}{5}, \sqrt{8}, 3.\bar{1}, \pi, 2\sqrt{3},$ but no work is shown.

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

(34) **[2]** (1,1), and appropriate work is shown, such as a correct graph of $\overline{AB}$ and an appropriate explanation of how point A is found or the use of the midpoint formula.

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

or

[1] Appropriate work is shown, but one conceptual error is made, such as finding the midpoint of the given coordinates.

or

[1] The midpoint and points A and B are graphed correctly, but the coordinates of point A are not stated or are stated incorrectly.

or

[1] (1,1), but no work is shown.

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

[4]

(35) **[2]** A correct construction is drawn, showing the arcs intersecting above and below $\overline{AB}$, and line *c* is drawn.

[1] A correct construction is drawn, but line *c* is not labeled.

[0] A drawing that is not a construction is shown with arc marks sketched.

or

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

[OVER]

Part III

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

(36)   **[3]** 50, and appropriate work is shown, such as a Venn diagram.

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

or

[2] 200, and appropriate work is shown to find the number of students that have brown hair and/or brown eyes.

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

or

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

or

[1] The numbers of students who have brown hair only (40) and brown eyes only (70) are found, but no further correct work is shown.

or

[1] 50, but no work is shown.

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

(37)   **[3]** Perimeter = $4x + 4$ or $4(x + 1)$ and area = $x^2 + 2x - 24$, and appropriate work is shown.

   [2] $4x + 4$ and $x^2 + 2x - 24$, and appropriate work is shown, but the answers are not labeled or are labeled incorrectly.

   or

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

   or

   [2] Area = $x^2 + 2x - 24$, and appropriate work is shown, but the perimeter is not found or is found incorrectly.

   or

   [2] The area and perimeter are represented correctly, but only one of them is expressed in simplest form.

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

   or

   [1] Perimeter = $4x + 4$, and appropriate work is shown, but the area is not found or is found incorrectly.

   or

   [1] The area and perimeter are represented correctly, but neither is expressed in simplest form.

   or

   [1] Perimeter = $4x + 4$ or $4(x + 1)$ and area = $x^2 + 2x - 24$, but no work is shown.

   [0] Perimeter = $4x + 4$ *or* area = $x^2 + 2x - 24$, but no work is shown.

   or

   [0] $4x + 4$ and $x^2 + 2x - 24$, but no work is shown and the answers are not labeled or are labeled incorrectly.

   or

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

Part IV

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

(38)   **[4]** Median = 91.5, mode = 92, and seventh test score = 96, and appropriate work is shown.

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

or

[3] Seventh test score = 96, but only the median *or* the mode is found correctly, but appropriate work is shown.

or

[3] 91.5, 92, and 96, and appropriate work is shown, but the median and mode are not labeled or are labeled incorrectly.

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

or

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

or

[2] Both the median and the mode are found and labeled correctly, and appropriate work is shown, but the seventh test score is not found or is found incorrectly.

or

[2] Seventh test score = 96, and appropriate work is shown, but the median and the mode are not found or are found incorrectly.

[1] Either the median *or* the mode is found and labeled correctly, and appropriate work is shown, but no further correct work is shown.

or

[1] Median = 91.5, mode = 92, and seventh test score = 96, but no work is shown.

[0] Median = 91.5 *or* mode = 92 *or* seventh test score = 96, but no work is shown.

or

[0] 91.5, 92, and 96, but no work is shown and the answers are not labeled.

or

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

(39) **[4]** (3,4) and (–3,–4), and a correct algebraic or graphic solution is shown.

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

or

[3] Appropriate work is shown for an algebraic or graphic solution, but only one correct ordered pair is found or the correct values are found only for *x or* for *y*.

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

or

[2] Both equations are graphed correctly, but neither ordered pair is identified.

or

[2] The line is graphed correctly, but the circle is graphed as a semicircle, and only one correct solution is identified.

or

[2] An incorrect quadratic equation of equal difficulty is solved appropriately, and an appropriate solution or solutions are found.

or

[2] The linear equation is graphed correctly and correct points of the circle are graphed, but the points are connected to form a quadrilateral, but appropriate ordered pairs are identified.

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

or

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

or

[1] An incorrect equation of a lesser degree of difficulty, such as a linear equation, is solved appropriately, and an appropriate solution or solutions are found.

or

[1] A correct quadratic equation is set equal to zero, but no further correct work is shown.

or

[1] (3,4) and (–3,–4), but no work is shown.

[0] (3,4) *or* (–3,–4), but no work is shown.

or

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

[9] [OVER]

Map to Learning Standards

Key Ideas	Item Numbers
Mathematical Reasoning	5, 16, 36
Number and Numeration	13, 20, 24, 33
Operations	2, 7, 12, 21, 29, 32, 37
Modeling/Multiple Representation	8, 10, 11, 14, 17, 23, 31, 35
Measurement	1, 19, 22, 25, 27, 34, 38
Uncertainty	3, 15, 26
Patterns/Functions	4, 6, 9, 18, 28, 30, 39

Regents Examination in Mathematics A

June 2004

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

The *Chart for Determining the Final Examination Score for the June 2004 Regents Examination in Mathematics A,* normally located on this page, will be posted on the Department's web site http://www.emsc.nysed.gov/osa/ on Wednesday, June 16, 2004. Conversion charts provided for previous administrations of the Mathematics A examination must NOT be used to determine students' final scores for this administration.

Regents Examination in Mathematics A
June 2004

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

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

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

All student answer papers that receive a scaled score of 60 through 64 **must** be scored a second time. For the second scoring, a different committee of teachers may score the student's paper or the original committee may score the paper, except that no teacher may score the same open-ended questions that he/she scored in the first rating of the paper.

Because scaled scores corresponding to raw scores in the conversion chart may change from one examination 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 Mathematics A examination.