

# MATHEMATICS A

Thursday, June 19, 2008 — 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. You may remove this sheet from this booklet. 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 you to use while taking this examination.

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

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

## Part I

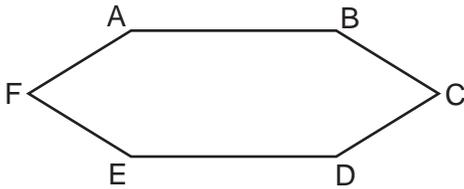
Answer all questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed. For each question, write on the separate answer sheet the numeral preceding the word or expression that best completes the statement or answers the question. [60]

Use this space for  
computations.

- 1 Segment  $RS$  is parallel to segment  $TU$ . If the slope of  $\overline{RS} = \frac{5}{8}$  and the slope of  $\overline{TU} = \frac{x}{24}$ , the value of  $x$  is

- (1) 20                                      (3) 10  
(2) 15                                      (4) 5

- 2 Which type of figure is shown in the accompanying diagram?



- (1) hexagon                                      (3) pentagon  
(2) octagon                                      (4) quadrilateral

- 3 At an all-county music competition, 150 students participated. If 90 students sang in the chorus and 90 played in the band, how many students *both* sang in the chorus and played in the band?

- (1) 0    (3) 60  
(2) 30    (4) 240

- 4 What is the value of  $w$  in the equation  $0.04w + 0.6 = 2.4$ ?

- (1) 0.045                                      (3) 4.5  
(2) 0.45    (4) 45

**Use this space for  
computations.**

**5** What is the sum of  $x^2 - 3x + 7$  and  $3x^2 + 5x - 9$ ?

- (1)  $4x^2 - 8x + 2$                       (3)  $4x^2 - 2x - 2$   
(2)  $4x^2 + 2x + 16$                     (4)  $4x^2 + 2x - 2$

**6** If  $2n + 1$  represents an odd integer, the next larger odd integer is represented by

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

**7** What is the value of the expression  $2x^3y$  when  $x = -2$  and  $y = 3$ ?

- (1)  $-192$   
(2)  $-108$   
(3)  $-48$   
(4)  $48$

**8** Expressed in scientific notation, the number 4,600,000,000 is

- (1)  $4.6 \times 10^{-8}$   
(2)  $4.6 \times 10^{-9}$   
(3)  $4.6 \times 10^9$   
(4)  $0.46 \times 10^{10}$

**9** At a department store, there are six ways to enter the building, six ways to get from the first floor to the second floor, and four ways to get from the second floor to the third floor. In how many different ways could someone enter the building and go to the third floor?

- (1) 16                                        (3) 120  
(2) 24                                        (4) 144

Use this space for  
computations.

10 What is the value of  $x$  in the equation  $5 - 3x = -7$ ?

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

(3)  $-4$

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

(4)  $4$

11 Which expression is equivalent to  $7\sqrt{90}$ ?

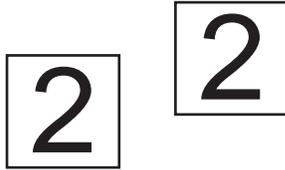
(1)  $16\sqrt{10}$

(3)  $70\sqrt{9}$

(2)  $21\sqrt{10}$

(4)  $\sqrt{630}$

12 Which transformation is illustrated by the accompanying diagram?



(1) translation

(3) rotation

(2) reflection

(4) dilation

13 If  $3(x + 2) - 2(x + 1) = 8$ , the value of  $x$  is

(1)  $1$

(3)  $5$

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

(4)  $4$

14 An expression equivalent to  $3!$  is

(1)  $3 \cdot 3$

(3)  $3 \cdot 3 \cdot 3$

(2)  $3 \cdot 2 \cdot 1$

(4)  $-3$

Use this space for  
computations.

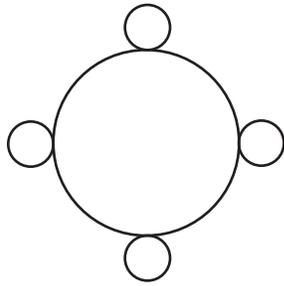
15 The reciprocal of 5 is

- (1) 1                                      (3)  $-\frac{1}{5}$   
(2)  $\frac{1}{5}$                                     (4) -5

16 What is the converse of the statement “If  $x$  is an even integer, then  $(x + 1)$  is an odd integer”?

- (1)  $x$  is not an even integer if and only if  $(x + 1)$  is not an odd integer.  
(2)  $x$  is an even integer if and only if  $(x + 1)$  is an odd integer.  
(3) If  $(x + 1)$  is not an odd integer, then  $x$  is not an even integer.  
(4) If  $(x + 1)$  is an odd integer, then  $x$  is an even integer.

17 How many lines of symmetry does the accompanying figure have?



- (1) an infinite number                  (3) 8  
(2) 2    (4) 4

18 The dimensions of a rectangle are 4 and 16. What is the *smallest* integral value that could be the side of a square that has an area larger than that of the rectangle?

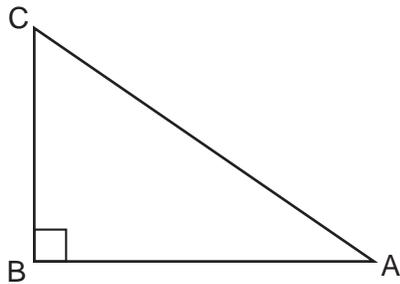
- (1) 8    (3) 64  
(2) 9    (4) 81

Use this space for  
computations.

19 Angle  $A$  and angle  $B$  are complementary angles. If  $m\angle A = x$ , which expression represents the number of degrees in angle  $B$ ?

- (1)  $x - 180$                       (3)  $x - 90$   
(2)  $180 - x$                       (4)  $90 - x$

20 Cassandra is calculating the measure of angle  $A$  in right triangle  $ABC$ , as shown in the accompanying diagram. She knows the lengths of  $\overline{AB}$  and  $\overline{BC}$ .



If she finds the measure of angle  $A$  by solving only one equation, which concept will be used in her calculations?

- (1) Pythagorean theorem    (3)  $\cos A$   
(2)  $\sin A$                       (4)  $\tan A$

21 The probability that Jinelle's bus is on time is  $\frac{2}{3}$ , and the probability that Mr. Corney is driving the bus is  $\frac{4}{5}$ . What is the probability that on any given day Jinelle's bus is on time and Mr. Corney is the driver?

- (1)  $\frac{2}{15}$                               (3)  $\frac{10}{12}$   
(2)  $\frac{8}{15}$                               (4)  $\frac{6}{8}$

**Use this space for  
computations.**

**22** What is the midpoint of the line segment that joins points  $(4,-2)$  and  $(-2,5)$ ?

- (1)  $\left(1, \frac{3}{2}\right)$                       (3)  $\left(1, \frac{7}{2}\right)$   
(2)  $\left(\frac{3}{2}, 3\right)$                       (4)  $\left(2, \frac{3}{2}\right)$

**23** A conditional statement is always logically equivalent to its

- (1) contrapositive                      (3) conjunction  
(2) converse                                (4) inverse

**24** If  $x + y = -10$  and  $x - y = 2$ , what is the value of  $x$ ?

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

**25** Point  $(-2,3)$  is reflected in the  $x$ -axis. In which quadrant does its image lie?

- (1) I    (3) III  
(2) II                                        (4) IV

**26** The expression  $(3c)^{-2}$  is equivalent to

- (1)  $-6c^2$                                   (3)  $\frac{1}{9c^2}$   
(2)  $\frac{1}{3c^2}$                                   (4)  $\frac{3}{c^2}$

**Use this space for  
computations.**

**27** Which property is illustrated by the equation  $6 + (4 + x) = 6 + (x + 4)$ ?

- (1) associative property of addition
- (2) associative property of multiplication
- (3) distributive property
- (4) commutative property of addition

**28** Under which operation is the set  $\{-1,0,1\}$  closed?

- (1) multiplication
- (2) division
- (3) addition
- (4) subtraction

**29** The accompanying table represents the number of cell phone minutes used for one week by 23 users.

| Number of Minutes | Number of Users |
|-------------------|-----------------|
| 71–80             | 10              |
| 61–70             | 7               |
| 51–60             | 2               |
| 41–50             | 3               |
| 31–40             | 1               |

Which interval contains the median?

- (1) 41–50
- (2) 51–60
- (3) 61–70
- (4) 71–80

**30** If the length of a side of a cube is  $7x$ , which expression represents the cube's volume?

- (1)  $7x^3$
  - (2)  $49x^3$
  - (3)  $343x$
  - (4)  $343x^3$
-

## Part II

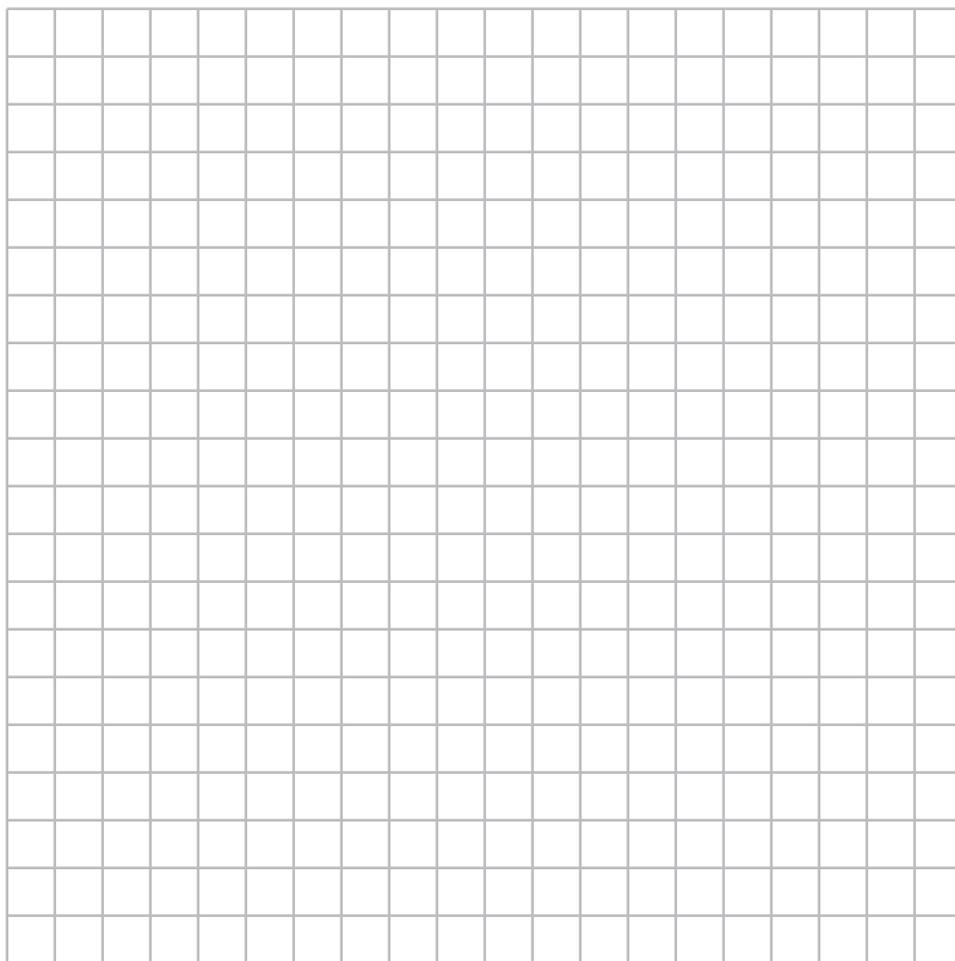
Answer all questions in this part. Each correct answer will receive 2 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [10]

- 31 Samuel is buying a new car. He wants either a convertible or a hatchback. Both types of cars are available in red, white, or blue and with automatic or standard transmission. Draw a tree diagram or list a sample space of all possible choices of cars that are available.

**32** An 18-foot ladder leans against the wall of a building. The base of the ladder is 9 feet from the building on level ground. How many feet up the wall, to the *nearest tenth of a foot*, is the top of the ladder?

**33** Kimberly rides her bicycle from her home to school at an average rate of 12 miles per hour. If it takes her 20 minutes to get to school, how many miles is her home from her school?

34 On the accompanying grid, draw the graph of the line whose slope is  $\frac{2}{3}$  and whose  $y$ -intercept is  $-2$ .



**35** Write the following numbers in order from smallest value to largest value:

$$\sqrt{3}, 1\frac{2}{3}, \frac{3}{2}, 1.75, 1$$

Justify your answer.

### 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 Max is paid a salary of \$225 a week plus 2.5% commission on his total sales.

Write an equation for  $P$ , Max's pay for one week, in terms of  $T$ , his weekly total sales.

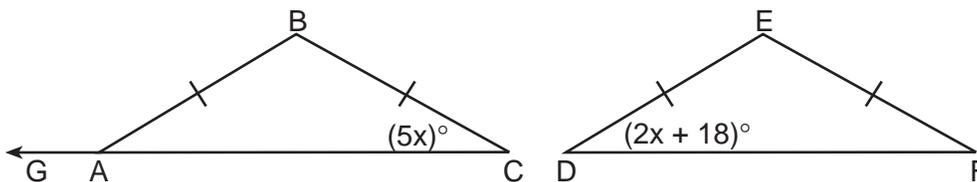
Use this equation to determine his total pay for a week in which his total sales are \$4,650.

37 Express in simplest form:  $\frac{x^2 - 5x - 24}{x^2 - 8x}$

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]

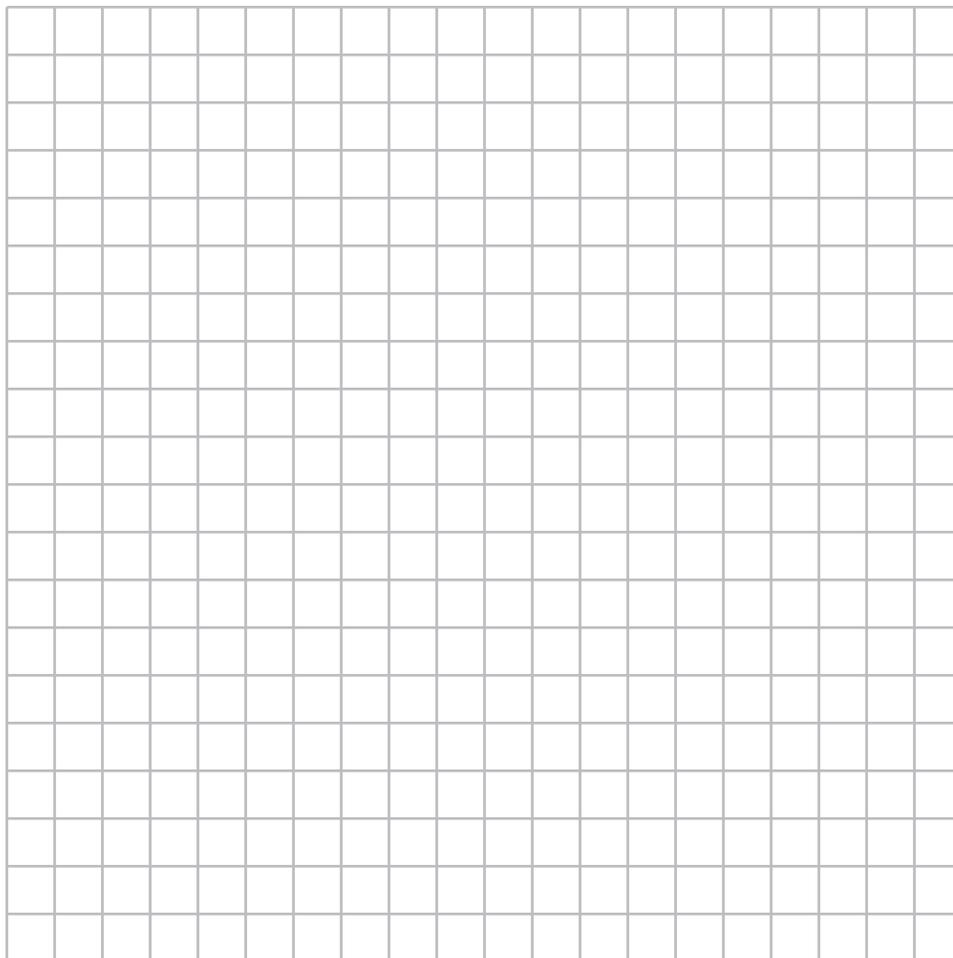
- 38 In the accompanying diagram, isosceles  $\triangle ABC \cong$  isosceles  $\triangle DEF$ ,  $m\angle C = 5x$ , and  $m\angle D = 2x + 18$ . Find  $m\angle B$  and  $m\angle BAG$ .



**39** Solve the following system of equations algebraically or graphically for  $x$  and  $y$ :

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

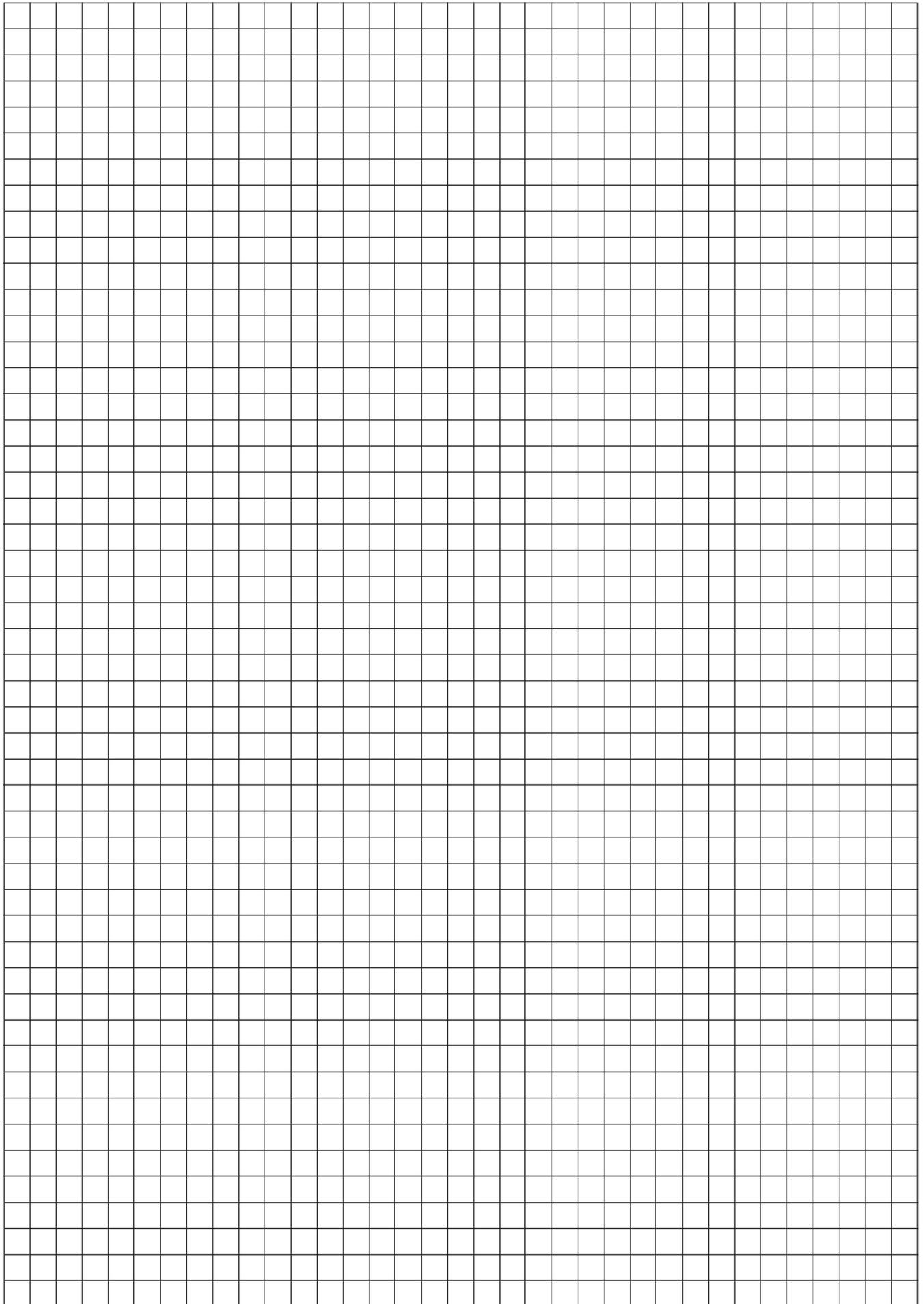
$$y = x - 1$$



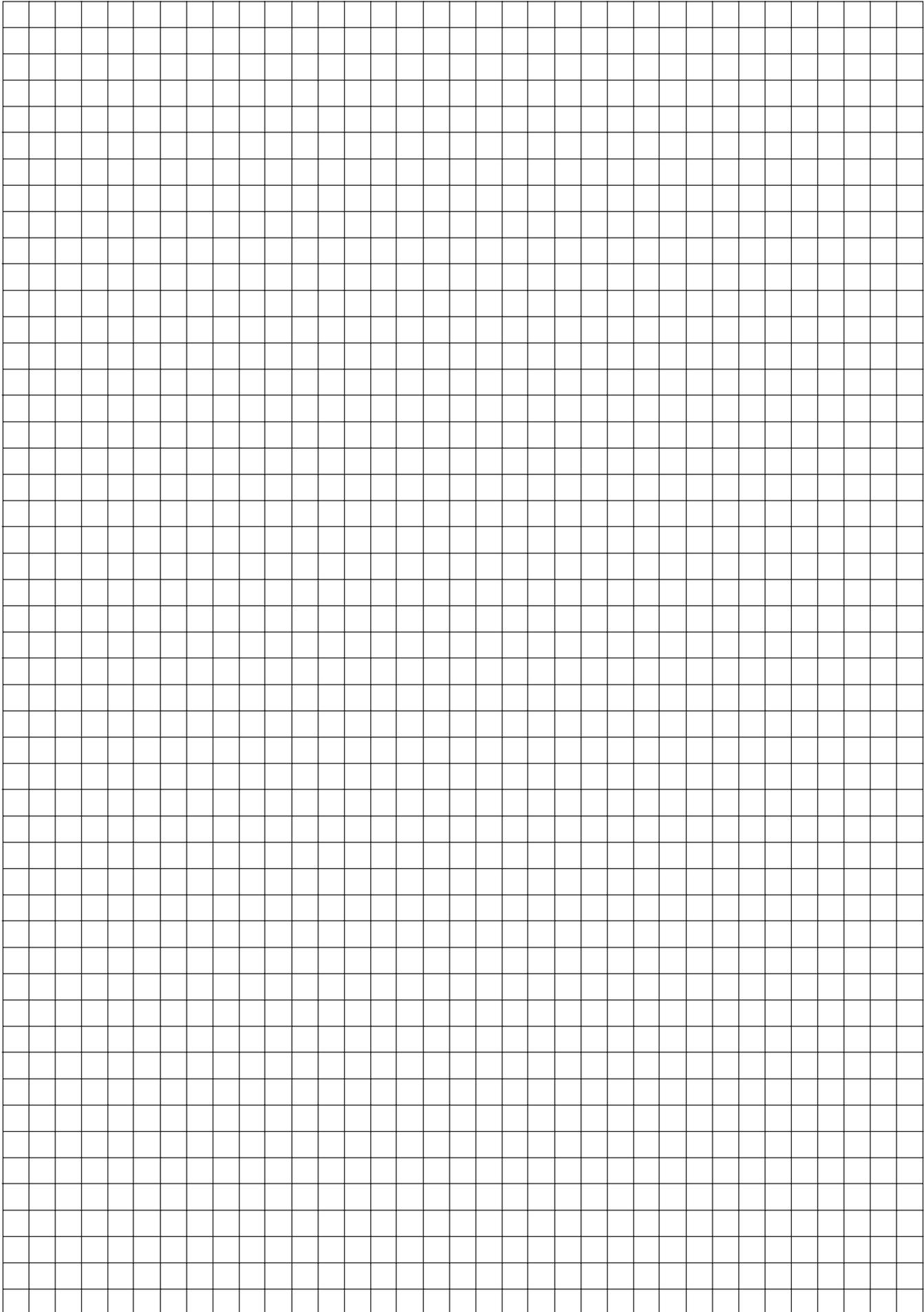
Scrap Graph Paper — This sheet will *not* be scored.

Tear Here

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



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The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

MATHEMATICS A

Thursday, June 19, 2008 — 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

Tear Here



# FOR TEACHERS ONLY

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

## MATHEMATICS A

Thursday, June 19, 2008 — 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 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 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. 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 Thursday, June 19, 2008. 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) 2 | (6) 1  | (11) 2 | (16) 4 | (21) 2 | (26) 3 |
| (2) 1 | (7) 3  | (12) 1 | (17) 4 | (22) 1 | (27) 4 |
| (3) 2 | (8) 3  | (13) 4 | (18) 2 | (23) 1 | (28) 1 |
| (4) 4 | (9) 4  | (14) 2 | (19) 4 | (24) 3 | (29) 3 |
| (5) 4 | (10) 4 | (15) 2 | (20) 4 | (25) 3 | (30) 4 |

Updated information regarding the rating of this examination may be posted on the New York State Education Department’s web site during the rating period. Check this web site <http://www.emsc.nysed.gov/osa/> and select the link “Examination 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.

### **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 Scoring the Regents 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] A complete and correct tree diagram or sample space is shown.
- [1] A tree diagram or sample space is shown, but one error is made.
- [0] A tree diagram or sample space is shown, but two or more errors are made.
- or*
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
- (32) [2] 15.6, and appropriate work is shown.
- [1] Appropriate work is shown, but one computational or rounding error is made.
- or*
- [1] Appropriate work is shown, but one conceptual error is made.
- or*
- [1] 15.6, but no work is shown.
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

MATHEMATICS A – *continued*

(33) [2] 4, and appropriate work is shown, such as using the formula  $rt = d$  or trial and error with at least three trials and appropriate checks.

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

***or***

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

***or***

[1] The trial-and-error method is attempted and at least six systematic trials and appropriate checks are shown, but no solution is found.

***or***

[1] 4, but no work or fewer than three trials with appropriate checks are 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] A correct graph is drawn that passes through the points (0,-2) and (3,0).

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

***or***

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

***or***

[1] At least two points that are on the line are plotted, but no graph is drawn.

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

MATHEMATICS A – *continued*

(35) [2] 1,  $\frac{3}{2}$ ,  $1\frac{2}{3}$ ,  $\sqrt{3}$ , 1.75, and an appropriate justification is given, such as work that shows all the given numbers converted to decimals.

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

*or*

[1] Appropriate work is shown, but one conceptual error is made, such as listing the numbers from largest to smallest.

*or*

[1] An equivalent decimal value is found for all the numbers, but the numbers are not listed or are listed incorrectly.

*or*

[1] 1,  $\frac{3}{2}$ ,  $1\frac{2}{3}$ ,  $\sqrt{3}$ , 1.75, 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.

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**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] A correct equation is written, such as  $P = 225 + 0.025T$ , and 341.25, and appropriate work is shown.

[2] A correct equation is written and appropriate work is shown, but one computational error is made.

***or***

[2] Appropriate work is shown to find the correct total pay, but no equation is written.

[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, such as using  $P = 225 + 0.25T$ .

***or***

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

***or***

[1] 341.25, but no work is shown and no equation is written.

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

MATHEMATICS A – *continued*

(37) [3]  $\frac{x+3}{x}$  or  $1 + \frac{3}{x}$ , and appropriate work is shown.

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

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

***or***

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

***or***

[1]  $\frac{x+3}{x}$  or  $1 + \frac{3}{x}$ , 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.

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**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]  $m\angle B = 120$  and  $m\angle BAG = 150$ , and appropriate work is shown.
- [3] Appropriate work is shown, but one computational error is made.
- or*
- [3] Appropriate work is shown, but only  $m\angle B$  or  $m\angle BAG$  is found.
- or*
- [3] Appropriate work is shown, and the correct answers are found, but they 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] Appropriate work is shown to find  $x = 6$ , but no further correct work is shown.
- [1]  $5x = 2x + 18$  is written, but no further correct work is shown.
- or*
- [1]  $m\angle B = 120$  and  $m\angle BAG = 150$ , but no work is shown.
- [0]  $m\angle B = 120$  *or*  $m\angle BAG = 150$ , 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.

MATHEMATICS A – *continued*

(39) [4] (1,0) and (4,3), and appropriate work is shown, such as an algebraic or a graphic solution.

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

**or**

[3] Appropriate algebraic work is shown, but only one solution is found or only the  $x$ -values or the  $y$ -values are found correctly.

**or**

[3] Both equations are graphed correctly showing two points of intersection, but the coordinates of the solutions are not written or only one is written.

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

**or**

[2] Appropriate work is shown, but one conceptual error is made, such as failing to extend the line or the parabola to intersect at a second point.

**or**

[2] The system of equations is written as  $x^2 - 5x + 4 = 0$ , but no further correct work is shown.

**or**

[2] The equation  $y = x^2 - 4x + 3$  is graphed correctly, but no further correct work is shown.

**or**

[2] (1,0) and (4,3), but a method other than an algebraic or graphic solution is used, such as trial and error with at least three trials and appropriate checks.

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

**or**

[1] The equation  $y = x - 1$  is graphed correctly, but no further correct work is shown.

**or**

[1] A correct substitution results in  $x - 1 = x^2 - 4x + 3$ , but no further correct work is shown.

**or**

[1] (1,0) and (4,3), but no algebraic or graphic work is shown or the trial-and-error method is used and fewer than three trials and appropriate checks are shown.

**or**

MATHEMATICS A – *continued*

[1] The trial-and-error method is attempted and at least six systematic trials and appropriate checks are shown, but no solution is found.

*or*

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

[0] (1,0) *or* (4,3), but no work is shown.

*or*

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

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**Map to Learning Standards**

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

**Regents Examination in Mathematics A**

**June 2008**

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

**The *Chart for Determining the Final Examination Score for the June 2008 Regents Examination in Mathematics A* will be posted on the Department’s web site <http://www.emsc.nysed.gov/osa/> on Thursday, June 19, 2008. Conversion charts provided for previous administrations of the Mathematics A examination must NOT be used to determine students’ final scores for this administration.**

**Submitting 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 [www.emsc.nysed.gov/osa/exameval](http://www.emsc.nysed.gov/osa/exameval).
2. Select the test title.
3. Complete the required demographic fields.
4. Complete each evaluation question and provide comments in the space provided.
5. Click the SUBMIT button at the bottom of the page to submit the completed form.



## Regents Examination in Mathematics A June 2008

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

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

All student answer papers that receive a scale 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 scale scores corresponding to raw scores in the conversion chart 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 Regents Examination in Mathematics A.