

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

MATEMÁTICAS A

Martes, 22 de enero, 2002 – de 1:15 a 4:15 p.m., solamente

Escriba su nombre en letras de molde

Escriba el nombre de su escuela en letras de molde:

Escriba su nombre y el nombre de su escuela en los recuadros de arriba en letras de molde. Después, pase a la última página de este folleto, que es la hoja de respuestas para la Parte I. Doble la última página a lo largo de las perforaciones y, lenta y cuidadosamente, desprenda la hoja de respuestas. Después rellene el encabezamiento de su hoja de respuestas.

No se permite papel de borrador para ninguna parte de este examen, pero usted puede usar los espacios en blanco en este folleto como papel de borrador. Una hoja perforada de papel de borrador cuadrado está provista al final de este folleto para cualquier pregunta para la cual sea útil una gráfica aunque no se requiere. Cualquier trabajo completado en esta hoja de papel de borrador cuadrado *no* será calificado. Todo el trabajo debe realizarse con bolígrafo, menos las gráficas y los dibujos, los cuales deben realizarse con lápiz.

Este examen contiene cuatro partes, con un total de 35 preguntas. Usted necesita contestar todas las preguntas de este examen. Escriba sus respuestas para las preguntas de selección múltiple de la Parte I en la hoja separada de respuestas. Escriba sus respuestas a las preguntas de las Partes II, III, y IV en este mismo folleto. Indique claramente los pasos necesarios que usted sigue, incluyendo las sustituciones apropiadas de fórmulas, diagramas, gráficas, tablas, etc.

Cuando usted haya terminado el examen, necesita firmar la declaración impresa al final de la hoja de respuestas, indicando que usted no tenía ningún conocimiento ilegal de las preguntas o de las respuestas antes del examen y que usted no ha dado ni ha recibido ayuda para contestar ninguna de las preguntas durante el examen. Su hoja de respuestas no puede ser aceptada si usted no firma esta declaración.

Aviso...

Un mínimo de una calculadora científica, una regla, y un compás tienen que estar disponibles para su uso mientras que se examina.

NO ABRA ESTE FOLLETO DE EXAMEN HASTA QUE SE DÉ LA SEÑAL.

Parte I

Conteste todas las preguntas de esta parte. Cada respuesta correcta recibirá 2 puntos. No se permitirá crédito parcial. Apunte sus respuestas en los espacios provistos en la hoja separada de respuestas. [40]

- 1 Expresado en forma descompuesta en factores, el binomio $4a^2 - 9b^2$ es equivalente a **Utilice este espacio para cálculos.**
- (1) $(2a - 3b)(2a - 3b)$ (3) $(4a - 3b)(a + 3b)$
(2) $(2a + 3b)(2a - 3b)$ (4) $(2a - 9b)(2a + b)$
- 2 Si la longitud de los catetos de un triángulo rectángulo son 5 y 7, ¿qué es la longitud de la hipotenusa?
- (1) $\sqrt{2}$ (3) $2\sqrt{6}$
(2) $2\sqrt{3}$ (4) $\sqrt{74}$
- 3 ¿Qué es la inclinación de una línea que representa la ecuación $2y = 5x + 4$?
- (1) 5 (3) $\frac{5}{2}$
(2) 2 (4) $\frac{2}{5}$
- 4 ¿Qué es el valor de x en la ecuación $\frac{3}{4}x + 2 = \frac{5}{4}x - 6$?
- (1) -16 (3) -4
(2) 16 (4) 4
- 5 El producto de $3x^2y$ y $-4xy^3$ es
- (1) $-12x^3y^4$ (3) $-12x^2y^3$
(2) $12x^3y^4$ (4) $12x^2y^3$

Utilice este espacio para cálculos.

- 6 El número aproximado de segundos en un año es 32,000,000. Cuando se escribe este número en notación científica, el valor numérico del exponente es

(1) -7
(2) 6

(3) 7
(4) 8

- 7 ¿Cuál expresión tiene que ser añadida a $3x - 7$ para equivaler a 0?

(1) 0
(2) $3x + 7$

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

- 8 ¿Cuál es el mayor número total posible de puntos de intersección de un triángulo y un círculo?

(1) 6
(2) 2

(3) 3
(4) 4

- 9 Una moneda se tira al aire tres veces. ¿Qué es la probabilidad que la moneda caiga en cruz la segunda vez que se tira al aire?

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

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

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

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

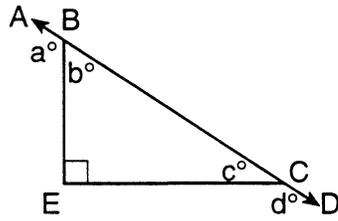
- 10 Hay 357 estudiantes en su último año ("seniors") de la escuela Harris High School. La razón de chicos a chicas es 7:10. ¿Cuántos chicos hay en la clase de estudiantes del último año ("seniors")?

(1) 210
(2) 147

(3) 117
(4) 107

- 16 En el diagrama acompañante, \overline{ABCD} es una línea recta, y el ángulo E del triángulo BEC es un ángulo recto.

Utilice este espacio para cálculos.



- ¿Qué equivale $a^\circ + d^\circ$?
- (1) 135° (3) 180°
(2) 160° (4) 270°
- 17 ¿Cuál conjunto está cerrado para la división?
- (1) $\{1\}$ (3) números enteros
(2) números de cuenta (4) números cardinales
- 18 Cuando Kimberly compró su nuevo carro, descubrió que hay 72 maneras diferentes de equipar a su carro. Sus opciones incluían cuatro motores diferentes y tres opciones de transmisión. Si la única otra opción era el color, ¿cuántas opciones de color tenía ella?
- (1) 6 (3) 60
(2) 12 (4) 65
- 19 ¿Cuál es un número irracional?
- (1) $\sqrt{9}$ (3) $\sqrt{3}$
(2) 3.14 (4) $\frac{3}{4}$
- 20 ¿Cuál declaración es lógicamente equivalente a “Si el equipo tiene un lanzador bueno, entonces el equipo tiene una temporada buena”?
- (1) Si el equipo no tiene una temporada buena, entonces el equipo no tiene un lanzador bueno.
(2) Si el equipo no tiene un lanzador bueno, entonces el equipo no tiene una temporada buena.
(3) Si el equipo tiene una temporada buena, entonces el equipo tiene un lanzador bueno.
(4) El equipo tiene un lanzador bueno y el equipo no tiene una temporada buena.

[PASE A LA PÁGINA SIGUIENTE]

Parte II

Conteste todas las preguntas de esta parte. Cada respuesta correcta recibirá 2 puntos. Indique claramente los pasos necesarios, incluyendo las sustituciones apropiadas de fórmulas, diagramas, gráficas, tablas, etc. Para todas las preguntas de esta parte, una respuesta numérica correcta sin mostrar el trabajo necesario sólo recibirá 1 punto. [10]

- 21 Seth está pensando en un número entre 20 y 30. El número es primo y está a una distancia máxima de 2 de un cuadrado perfecto. ¿Qué es el número?

- 22 Un árbol de 12 pies proyecta una sombra de 16 pies. ¿Cuántos pies de alto es un árbol cercano que proyecta una sombra de 20 pies al mismo tiempo?

- 23 El ángulo de vértice A del triángulo isósceles ABC mide 20° más de tres veces $m\angle B$. Busque $\angle C$.

- 24 Ashanti y María fueron a la tienda para comprar bocados para su fiesta celebrando el retorno a la escuela. Compraron bolsas de papitas fritas, *pretzels*, y papitas fritas *nacho* (con sazón picante). Compraron tres veces la cantidad de bolsas de *pretzels* como de bolsas de papitas fritas, y dos bolsas de papitas fritas *nacho* menos que bolsas de *pretzels*. Si x representa el número de bolsas de papitas fritas que compraron, exprese, en términos de x , cuántas bolsas de bocados compraron en total.

25 Construya un triángulo con los lados de longitudes a , b , y c , tal como demostrado abajo. Asegúrese que el lado más largo de su triángulo se coloca sobre \overline{PQ} y que el punto P es uno de los vértices del triángulo. [Demuestre todos los arcos necesarios para una construcción válida.]

a _____

b _____

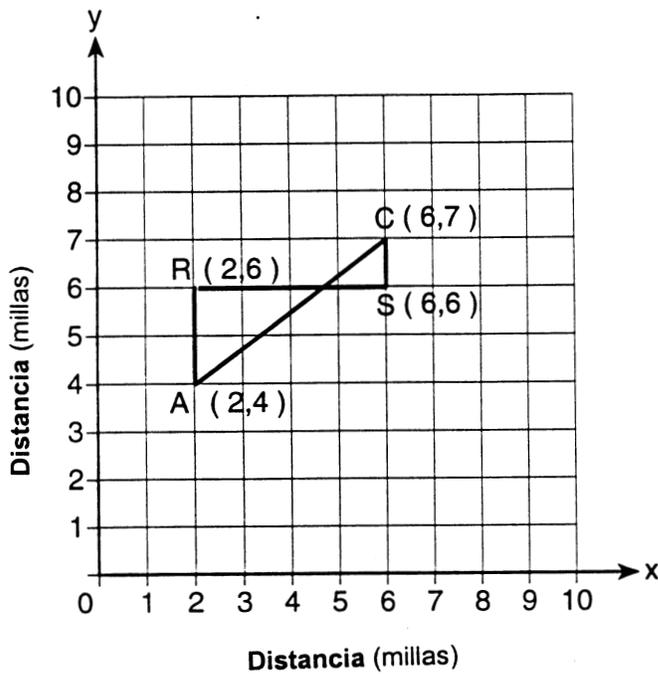
c _____



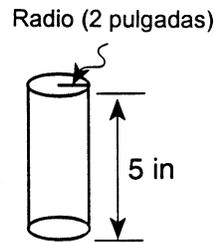
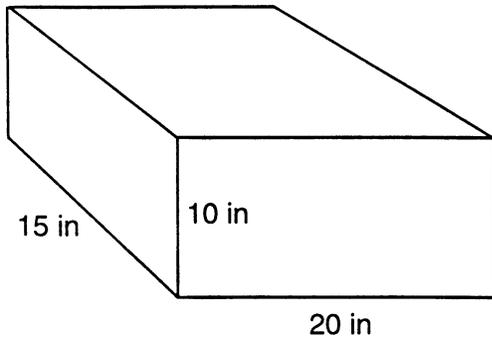
Parte III

Conteste todas las preguntas de esta parte. Cada respuesta correcta recibirá 3 puntos. Indique claramente los pasos necesarios, incluso sustituciones apropiadas de fórmulas, diagramas, gráficas, tablas, etc. Para todas las preguntas de esta parte, una respuesta numérica correcta sin el trabajo necesario demostrado sólo recibirá 1 punto.[15]

- 26 Jerry y Jean Jogger empiezan en el mismo momento del punto A demostrado en el siguiente conjunto de ejes acompañante. Jerry corre a una velocidad de 5 millas por hora viajando del punto A al punto R al punto S y después al punto C . Jean corre directamente del punto A al punto C en \overline{AC} a la velocidad de 3 millas por hora. ¿Cuál de los dos llegará al punto C primero? Explique o demuestre su razonamiento.

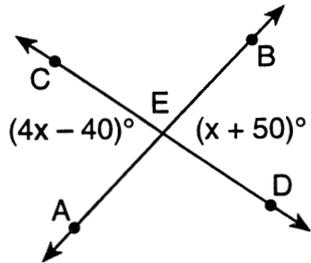


- 27 En el diagrama acompañante, un recipiente rectangular con las dimensiones de 10 pulgadas por 15 pulgadas por 20 pulgadas se va a llenar con agua, empleando un vaso cilíndrico con el radio de 2 pulgadas y con una altura de 5 pulgadas. ¿Qué es el número máximo de vasos llenos de agua que pueden ser metidos en el recipiente sin que el agua se derrame del recipiente?



- 28 Un total de 600 entradas fueron vendidas para un concierto. Dos veces la cantidad de entradas fueron vendidas con anticipación como las vendidas la noche del concierto. Si las entradas vendidas con anticipación costaban \$25 por entrada y las entradas vendidas la noche del concierto costaban \$32 por entrada, ¿cuánto dinero se recogió para el concierto?

- 29 En el diagrama acompañante, \overleftrightarrow{AB} y \overleftrightarrow{CD} se intersecan en E . Si $m\angle AEC = 4x - 40$ y $m\angle BED = x + 50$, busque el número de grados en $\angle AEC$.

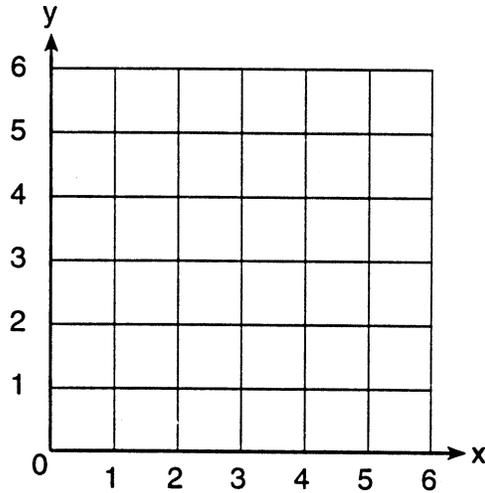


- 30 Los estudiantes de la clase de meteorología de Woodland High School midieron la temperatura al mediodía cada día de la escuela durante una semana. Sus resultados para los primeros 4 días eran lunes, 56° ; martes, 72° ; miércoles, 67° ; y jueves, 61° . Si la temperatura mediana (del promedio) para los 5 días era exactamente 63° , ¿qué era la temperatura el viernes?

Parte IV

Conteste todas las preguntas de esta parte. Cada respuesta correcta recibirá 4 puntos. Indique claramente los pasos necesarios, incluyendo sustituciones apropiadas de fórmulas, diagramas, gráficas, tablas, etc. Para todas las preguntas de esta parte, una respuesta numérica correcta sin mostrar el trabajo sólo recibirá 1 punto. [20]

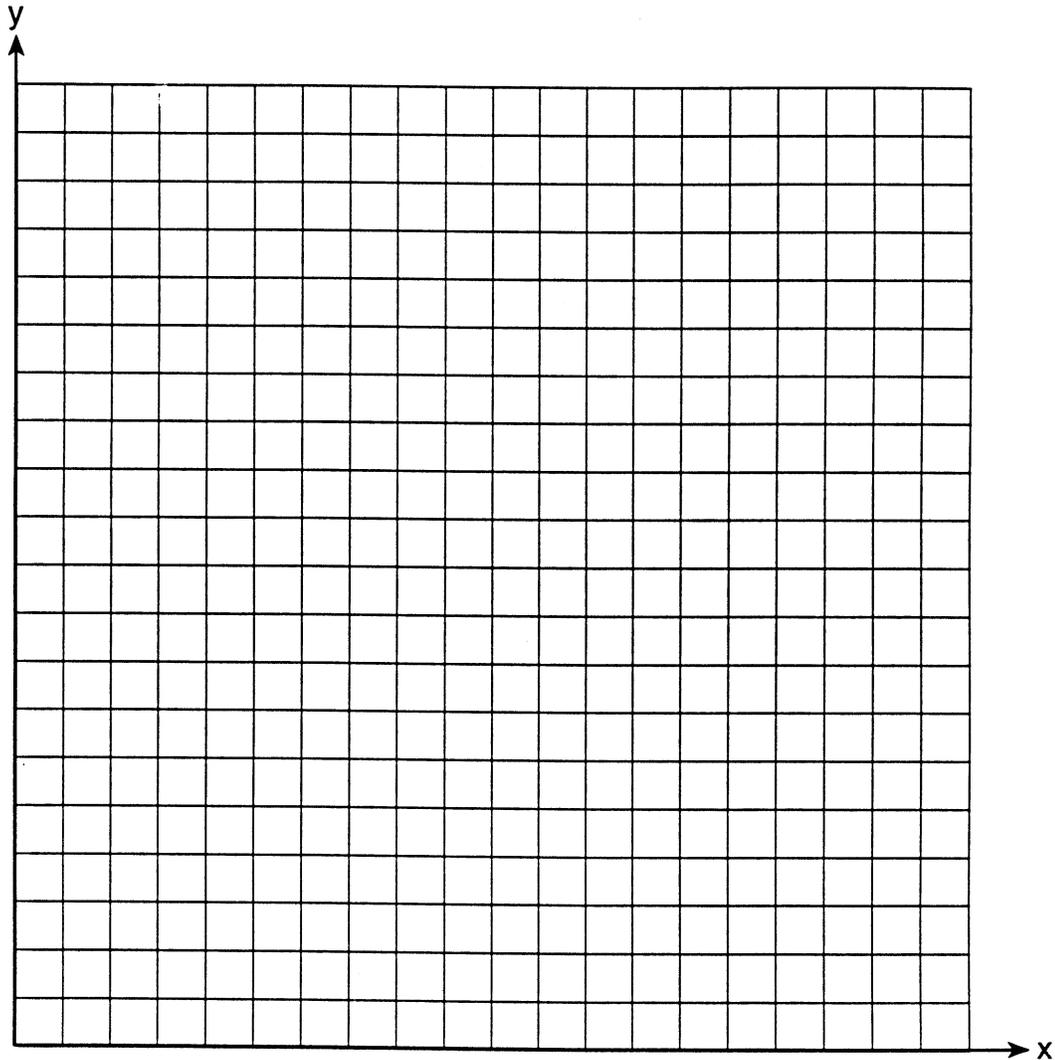
- 31 Un blanco cuadrado para dardos se representa en el diagrama acompañante. El blanco entero es el primer cuadrante de $x = 0$ a 6 y de $y = 0$ a 6. Una región triangular del blanco está cercado por las gráficas de las ecuaciones $y = 2$, $x = 6$, e $y = x$. Busque la probabilidad que un dardo que da al azar con el blanco caiga en la región triangular formada por las tres líneas.



- 32 Cuando Tony recibió su dinero semanal, decidió comprar caramelos para todos sus amigos. Tony compró tres caramelos *Milk Chocolate* y cuatro caramelos *Creamy Nougat*, que costaron \$4.25 sin impuestos. Después se dio cuenta que esto no sería suficiente para todos sus amigos, así que volvió a la tienda y compró seis caramelos *Milk Chocolate* y cuatro caramelos *Creamy Nougat* por encima de los demás, con un costo total de \$6.50 sin impuestos. ¿Cuánto costó *cada* tipo de caramelo?

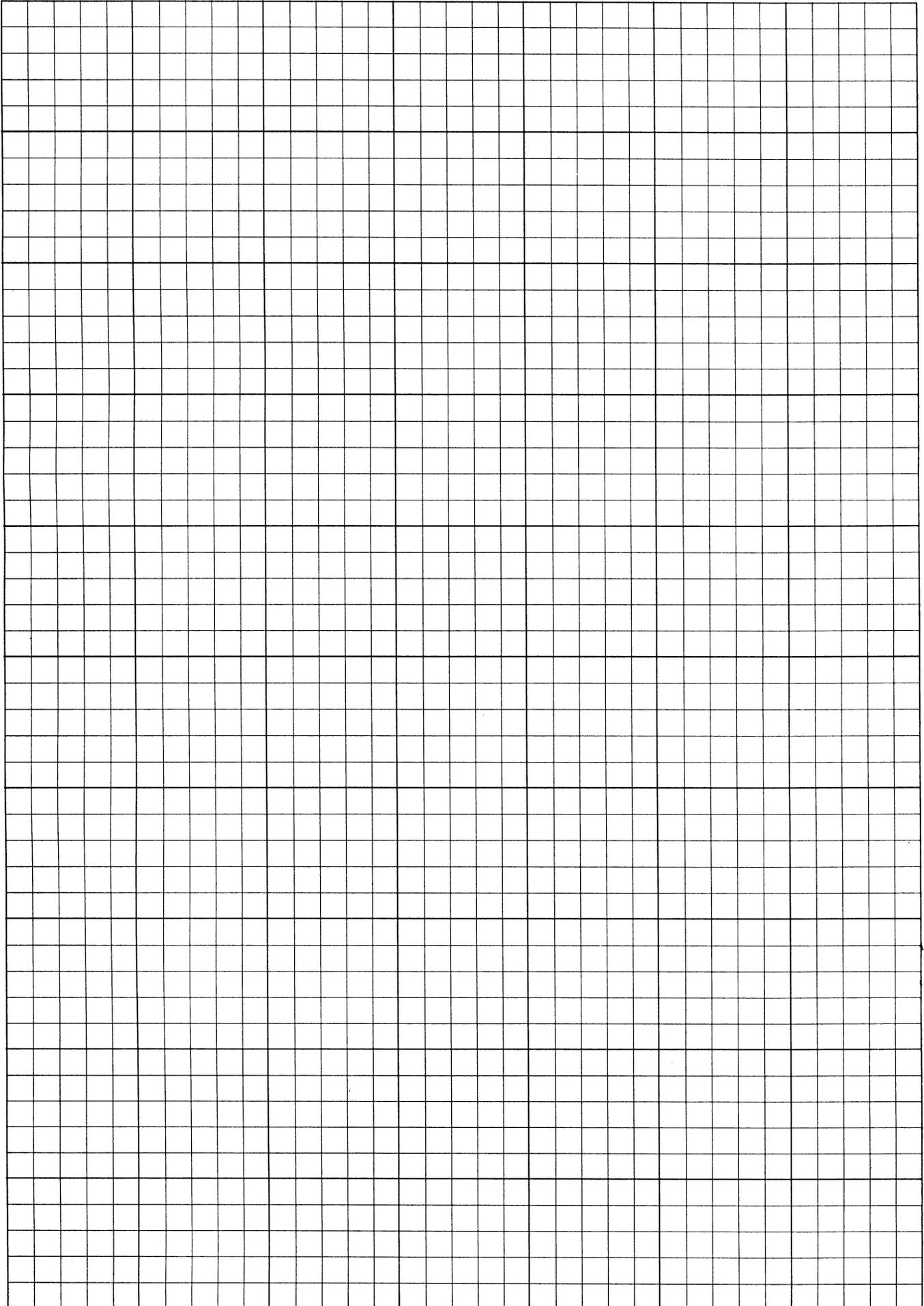
- 33 La tarea de Javon es determinar las dimensiones del jardín rectangular detrás de su casa. Sabe que la longitud es 10 pies más que la anchura, y el área total es 144 pies cuadrados. Escriba una ecuación que Javon puede usar para solucionar este problema. Después, busque las dimensiones, en pies, del jardín detrás de su casa.

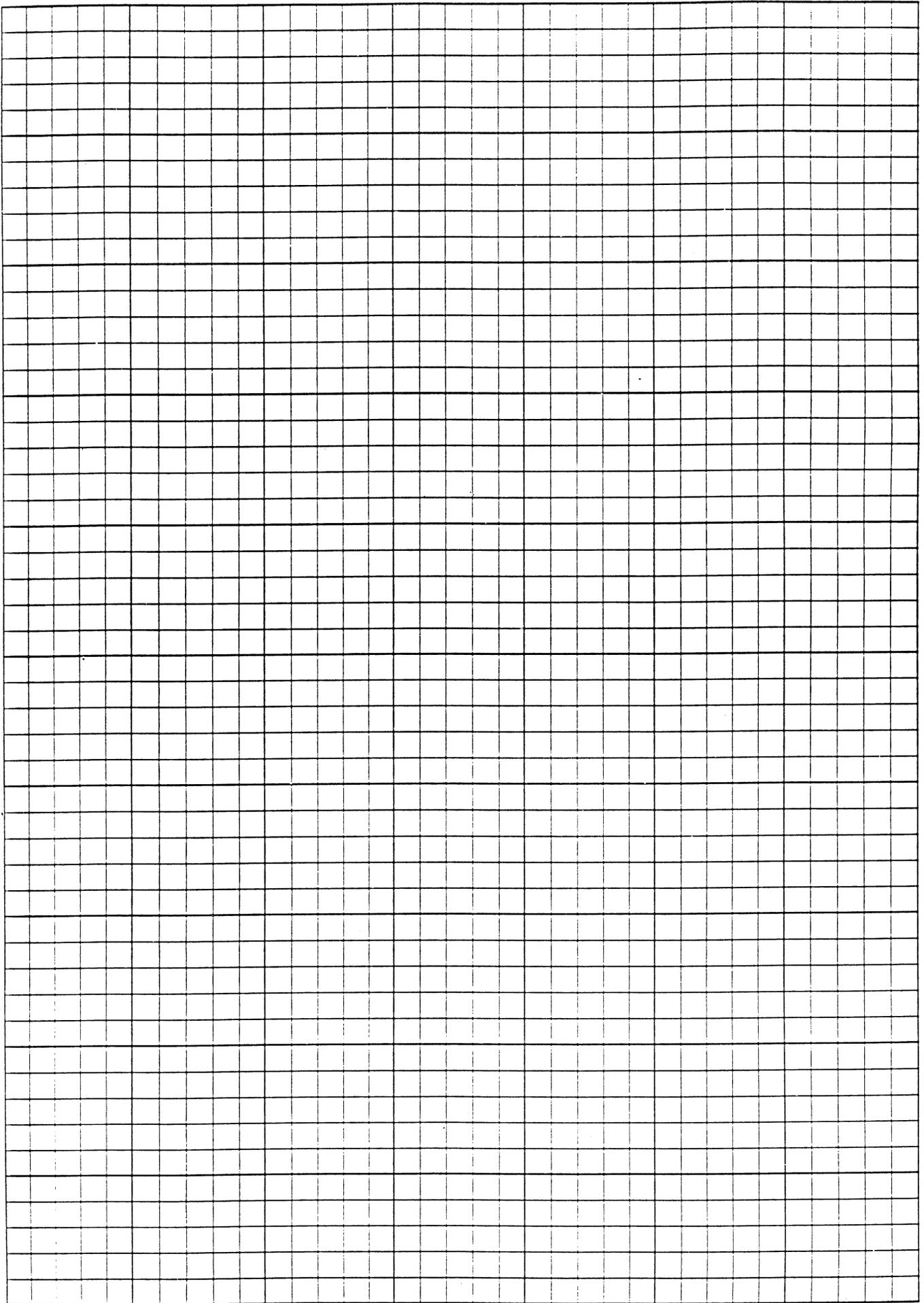
- 34 Una compañía fabrica bicicletas y *skateboards* (patines). La producción diaria de la compañía de bicicletas no puede sobrepasar a 10, y su producción diaria de *skateboards* tiene que ser menos de o igual a 12. El número combinado de bicicletas y *skateboards* no puede ser más de 16. Si x es el número de bicicletas y y es el número de *skateboards*, haga una gráfica en el conjunto acompañante de ejes de la región que contiene el número de bicicletas y de *skateboards* que la compañía puede fabricar diariamente.



- 35 Dibuje y ponga rótulos a un diagrama de la trayectoria de un avión que sube a un ángulo de 11° con la tierra. Busque, *al pie más cercano*, la distancia terrestre que el avión haya viajado cuando haya alcanzado una altitud de 400 pies.

Papel Borrador Cuadrulado – Esta hoja *no* será calificada.





The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

MATEMÁTICAS A

Martes, 22 de enero, 2002 – de 1:15 a 4:15 p.m., solamente

HOJA DE RESPUESTAS

Estudiante Sexo: Masculino Femenino Grado

Maestro Escuela

Las respuestas de usted para la Parte I deben apuntarse en esta hoja de respuestas.

Parte I

Conteste todas las 20 preguntas de esta parte.

- | | | | |
|---------|----------|----------|----------|
| 1 | 6 | 11 | 16 |
| 2 | 7 | 12 | 17 |
| 3 | 8 | 13 | 18 |
| 4 | 9 | 14 | 19 |
| 5 | 10 | 15 | 20 |

Las respuestas de usted para las Partes II, III, y IV deben escribirse en el folleto del examen.

La declaración abajo debe ser firmada cuando usted haya completado el examen.

Por la presente afirmo, al terminarse este examen, que no tenía ningún conocimiento ilegal de las preguntas o de las respuestas antes del examen y que no he dado ni he recibido ayuda en contestar ninguna de las preguntas durante el examen.

Firma

FOR TEACHERS ONLY

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

MATHEMATICS A

Tuesday, January 22, 2002 — 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 printed at the end of this key. 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 40 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) 3 | (11) 4 | (16) 4 |
| (2) 4 | (7) 4 | (12) 2 | (17) 1 |
| (3) 3 | (8) 1 | (13) 3 | (18) 1 |
| (4) 2 | (9) 2 | (14) 1 | (19) 3 |
| (5) 1 | (10) 2 | (15) 3 | (20) 1 |

Part II

For each question, use the specific criteria to award a maximum of two credits.

(21) [2] 23, and appropriate work is shown.

[1] Appropriate work is shown, but no answer or an incorrect answer is found.

or

[1] 23, 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.

(22) [2] 15, and any equivalent proportion, equation, or fraction conversion is shown, such as $\frac{12}{16} = \frac{x}{20}$.

[1] An appropriate proportion, equation, or fraction conversion is shown, but one computational or conceptual error is made.

or

[1] An incorrect proportion, equation, or fraction conversion is shown, but an appropriate answer is found for the incorrect proportion.

or

[1] 15, 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*

- (23) [2] 32, and appropriate work is shown, such as a diagram or “let” statements and an appropriate equation, such as $5x + 20 = 180$.

or

- [2] 32, and an appropriate trial-and-error method with at least two trials and appropriate checks are shown.

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

or

- [1] An incorrect equation set equal to 180° is shown, but it is solved appropriately, such as $4x + 20 = 180$; or an incorrect equation set equal to 360° is shown, such as $5x + 20 = 360$.

or

- [1] 32, and an appropriate trial-and-error method with less than two trials and appropriate checks are shown.

or

- [1] 32, but no work is shown.

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

- (24) [2] $7x - 2$ or $x + 3x + 3x - 2$, and appropriate work is shown, such as $x + 3x + 3x - 2$ when chips = x , pretzels = $3x$, and nachos = $3x - 2$.

- [1] The expressions for snacks are represented correctly, but one computational error is made in adding the expressions.

or

- [1] The expressions for snacks are represented incorrectly, but the expressions are added appropriately.

or

- [1] $7x - 2$, 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*

(25) [2] A correct triangle with the longest side on \overline{PQ} and a vertex at P is drawn, and three appropriate arcs are shown.

[1] A correct triangle is constructed on \overline{PQ} , but P is not a vertex.

or

[1] A correct triangle is constructed with no sides on \overline{PQ} .

[0] A triangle that is not congruent to the correct solution or a triangle with less than three arcs 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.

Part III

For each question, use the specific criteria to award a maximum of three credits.

- (26) [3] Jerry, and appropriate work is shown, such as the following explanation: Jerry traveled 7 miles at a rate of 5 miles per hour and his time was $1\frac{2}{5}$ hours; Jean traveled 5 miles at a rate of 3 miles per hour for a time of $1\frac{2}{3}$ hours.

[2] The time for each jogger is calculated appropriately, but an error is made in determining one of the distances, but an appropriate answer is found.

or

[2] The time for each jogger is calculated correctly, but the question of which person reached *C* first is not answered.

or

[2] Both distances are calculated correctly, but an error is made in determining times, but an appropriate answer is found.

[1] Only the distances are calculated correctly. No answer to the question is found or an answer is found based on distance only.

or

[1] The time for only one jogger is calculated correctly, and the question of which person reached *C* first is not answered.

or

[1] The time for both joggers is calculated appropriately, but multiple computational errors are made.

or

[1] Jerry and $1\frac{2}{5}$ hours and $1\frac{2}{3}$ hours, but no work is shown.

[0] Jerry, 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*

(27) [3] 47, and appropriate work is shown.

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

or

[2] The correct numerical value of the volume of the cup (20π or its equivalent) and the volume of the tank (3,000) are shown, but the solution is not completed.

[1] The correct volume of only the cup or only the tub is shown.

or

[1] 47, 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.

(28) [3] \$16,400, and appropriate work is shown, such as

$$\begin{array}{r} 200 \text{ tickets sold at the door} \times \$32 = \$ 6,400 \\ 400 \text{ tickets sold in advance} \times \$25 = \underline{\$10,000} \\ \phantom{400 \text{ tickets sold in advance}} = \$16,400 \end{array}$$

[2] The correct number of tickets is shown, but one computational error is made in computing the total amount of money collected.

or

[2] \$6,400 and \$10,000 are calculated correctly, but they are not added to obtain the total.

[1] The numbers of tickets, 200 and 400, are calculated correctly.

or

[1] An appropriate solution is found, but it is based on incorrect numbers of tickets.

or

[1] \$16,400, but no work is shown.

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

- (29) [3] 80, and appropriate work is shown.
- [2] $x = 30$ is shown, but the student fails to substitute to find $m\angle AEC$.
- or**
- [2] $x = 30$ is shown, but the student states that the answer is 100° , by finding the supplement of $\angle AEC$.
- or**
- [2] The student makes one computational error in the solution of the correct equation $4x - 40 = x + 50$ but appropriately substitutes the incorrect value to solve for $m\angle AEC$.
- [1] The student makes one computational error in the solution of the correct equation $4x - 40 = x + 50$ and fails to substitute to find $m\angle AEC$.
- or**
- [1] The student makes more than one computational error in the solution of the correct equation $4x - 40 = x + 50$, but appropriately substitutes the incorrect value to solve for $m\angle AEC$.
- or**
- [1] 80, 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.
- (30) [3] 59 or 59° , and appropriate work is shown, such as $63 = \frac{256 + x}{5}$ or $56 + 72 + 67 + 61 = 256$, $63 \times 5 = 315$, and $315 - 256 = 59$.
- [2] Appropriate work is shown, but one computational error is made.
- or**
- [2] A value is chosen for Friday's temperature that rounds to 63, such as 57 or 61, but whose mean is not exactly 63, and appropriate work is shown.
- [1] A limited understanding of the concept of the mean is shown, such as the sum of the temperatures must be 315, but the given temperatures are not subtracted.
- or**
- [1] The correct mean of the four given temperatures is calculated.
- or**
- [1] 59 or 59° , but no work is shown.
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

Part IV

For each question, use the specific criteria to award a maximum of four credits.

- (31) [4] $\frac{8}{36}$ or $\frac{2}{9}$ or 2:9, and all three lines are graphed correctly and the triangle's area is shown to be 8 and the square's area is shown to be 36.
- [3] The three lines are graphed correctly, but one area is incorrect, but the probability is appropriate, based on this error.
- or*
- [3] The graphs and areas are correct, but the probability is incorrect, based on one computational error.
- or*
- [3] The three lines are graphed correctly and both areas are calculated correctly, but the probability is not found.
- or*
- [3] One equation is graphed incorrectly, but the area is appropriate, based on the graph, and the probability is appropriate, based on the areas.
- [2] The three lines are graphed correctly, but the area of the smaller triangle is used, but the probability is appropriate, such as $\frac{2}{36}$.
- or*
- [2] Two or three lines are graphed incorrectly, but the areas and the probability are appropriate.
- or*
- [2] The lines are graphed correctly, but the areas are incorrect, but the probability is appropriate, based on the errors.
- [1] All graphs and the areas are incorrect, but the probability is appropriate.
- or*
- [1] $\frac{8}{36}$ or $\frac{2}{9}$ or 2:9, 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.

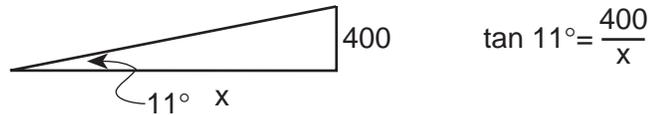
MATHEMATICS A – *continued*

- (32) [4] Milk Chocolate bar = \$0.75 and Creamy Nougat bar = \$0.50, and appropriate work is shown, such as equations, a trial-and-error method with at least two trials and appropriate checks, or an algebraic or graphic solution.
- [3] Appropriate work is shown, but one computational error is made.
- [2] The cost of one candy bar is determined correctly with appropriate work shown, but no attempt is made to find the cost of the other candy bar.
- or**
- [2] Appropriate work is shown, but more than one computational error is made.
- [1] Appropriate work is shown, but no answer is found.
- or**
- [1] Milk Chocolate bar = \$0.75 and Creamy Nougat bar = \$0.50, 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.
- (33) [4] $x(x + 10) = 144$ or an equivalent equation and 8 = width and 18 = length, and appropriate work is shown.
- [3] Appropriate work is shown, but one computational error is made.
- or**
- [3] A correct equation is used and a correct solution is found, but only one dimension is identified.
- [2] An appropriate solution is found to an incorrect equation of equal difficulty.
- or**
- [2] A correct equation set equal to zero is shown, with no further work or incorrect work.
- [1] A conceptual error is made, such as writing the equation $2x + 2(x + 10) = 144$, but the dimensions are found appropriately.
- or**
- [1] $x(x + 10) = 144$ and 8 = width and 18 = length, 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*

- (34) [4] The inequalities $x \leq 10$, $y \leq 12$, and $x + y \leq 16$ are graphed and shaded correctly on the given set of axes.
- [3] All inequalities are graphed and shaded correctly, but one incorrect type of line (dashed or broken) is used.
- or**
- [3] All three inequalities are graphed correctly, but one inequality is not shaded or is shaded incorrectly.
- or**
- [3] The inequality $x + y \leq 16$ is graphed correctly, but an error is made in graphing either the horizontal or vertical line, but they are shaded appropriately.
- or**
- [3] Only two of the three inequalities are graphed correctly, but all three are shaded appropriately.
- [2] All three inequalities are graphed correctly, but two are shaded incorrectly.
- or**
- [2] Only two of the three inequalities are graphed and shaded correctly.
- [1] Only one of the three inequalities is graphed and shaded correctly.
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

- (35) [4] 2,058, and appropriate work is shown, such as the accompanying diagram and equation.



- [3] Appropriate work is shown, including a correct diagram and the use of the tangent function, but one computational error is made.

or

- [3] Appropriate work is shown, including a correct diagram and the use of the tangent function, but the answer is not rounded or is rounded incorrectly.

- [2] A correct diagram is drawn, but an incorrect trigonometric function is selected, but it is solved and rounded appropriately.

or

- [2] A correct diagram is drawn and the tangent function is selected, but no further work is shown.

or

- [2] An incorrect diagram is drawn, but the appropriate trigonometric function, based on the drawing, is selected, solved, and rounded appropriately.

- [1] An incorrect diagram is drawn and an incorrect trigonometric function is selected, but it is solved and rounded appropriately.

or

- [1] Only a correct diagram is drawn.

or

- [1] 2,058, 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

Map to Learning Standards

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

Regents Examination in Mathematics A

January 2002

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

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

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. The school principal is responsible for assuring that the student's final examination score is based on a fair, accurate, and reliable scoring of the student's answer 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 in the scoring key 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.