The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

GEOMETRY

Wednesday, August 13, 2014 — 8:30 to 11:30 a.m., only

Student Name:_____

School Name: _____

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

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

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

This examination has four parts, with a total of 38 questions. You must answer all questions in this examination. Record your answers to the Part I multiple-choice questions on the separate answer sheet. Write your answers to the questions in Parts II, III, and IV directly in this booklet. All work should be written in pen, except for graphs and drawings, which should be done in pencil. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc.

The formulas that you may need to answer some questions in this examination are found at the end of the examination. This sheet is perforated so you may remove it from this booklet.

Scrap paper is not permitted for any part of this examination, but you may use the blank spaces in this booklet as scrap paper. A perforated sheet of scrap graph paper is provided at the end of this booklet for any question for which graphing may be helpful but is not required. You may remove this sheet from this booklet. Any work done on this sheet of scrap graph paper will *not* be scored.

When you have completed the examination, you must sign the statement printed at the end of the answer sheet, indicating that you had no unlawful knowledge of the questions or answers prior to the examination and that you have neither given nor received assistance in answering any of the questions during the examination. Your answer sheet cannot be accepted if you fail to sign this declaration.

Notice…

A graphing calculator, a straightedge (ruler), and a compass must be available for you to use while taking this examination.

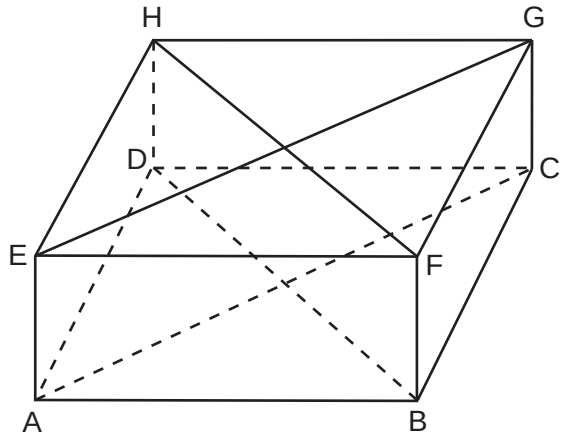
DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN.

Part I

Answer all 28 questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed. For each statement or question, choose the word or expression that, of those given, best completes the statement or answers the question. Record your answers on your separate answer sheet. [56]

Use this space for computations.

1 A rectangular prism is shown in the diagram below.



Which pair of line segments would always be both congruent and parallel?

(1) $\overline{AC}$ and $\overline{FB}$

(2) $\overline{FB}$ and $\overline{DB}$

(3) $\overline{HF}$ and $\overline{AC}$

(4) $\overline{DB}$ and $\overline{HF}$

2 In parallelogram $QRST$, diagonal $\overline{QS}$ is drawn. Which statement must always be true?

(1) $\triangle QRS$ is an isosceles triangle.

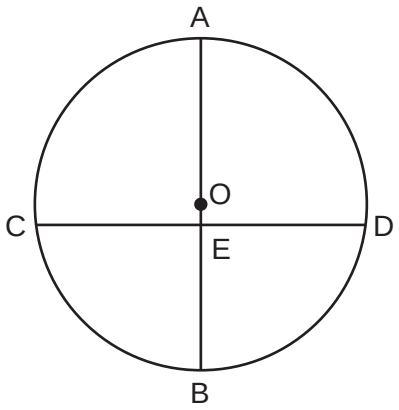
(2) $\triangle STQ$ is an acute triangle.

(3) $\triangle STQ \cong \triangle QRS$

(4) $\overline{QS} \cong \overline{QT}$

Use this space for computations.

3 In the diagram below of circle O, diameter $\overline{AB}$ and chord $\overline{CD}$ intersect at E.



If $\overline{AB} \perp \overline{CD}$, which statement is always true?

(1) $\overset{\frown}{AC} \cong \overset{\frown}{BD}$

(2) $\overset{\frown}{BD} \cong \overset{\frown}{DA}$

(3) $\overset{\frown}{AD} \cong \overset{\frown}{BC}$

(4) $\overset{\frown}{CB} \cong \overset{\frown}{BD}$

4 What is an equation of the line that passes through $(-9,12)$ and is perpendicular to the line whose equation is $y = \frac{1}{3}x + 6$?

(1) $y = \frac{1}{3}x + 15$

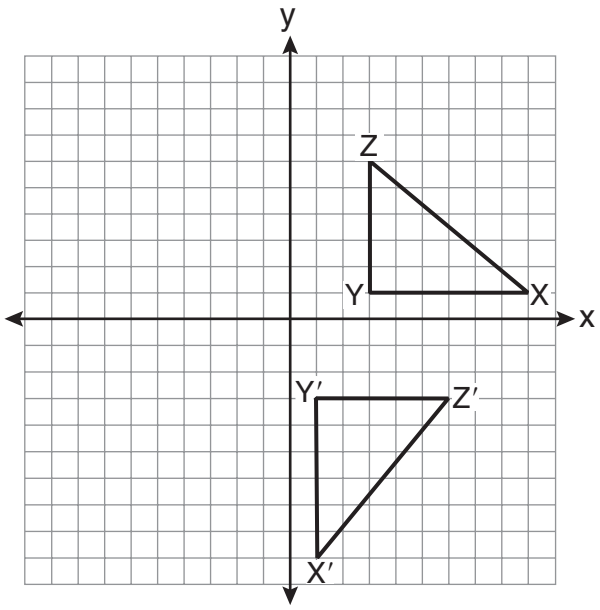
(2) $y = -3x - 15$

(3) $y = \frac{1}{3}x - 13$

(4) $y = -3x + 27$

Use this space for computations.

5 In the diagram below, under which transformation is $\triangle X'Y'Z'$ the image of $\triangle XYZ$?



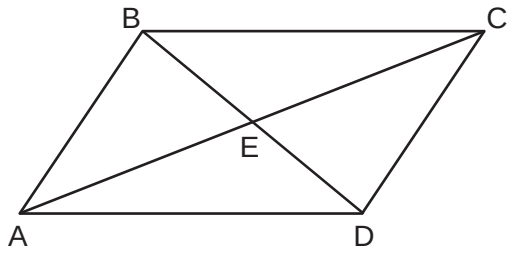
(1) dilation
(2) reflection
(3) rotation
(4) translation

6 What is the solution of the system of equations $y - x = 5$ and $y = x^2 + 5$?

(1) (0,5) and (1,6)
(2) (0,5) and (−1,6)
(3) (2,9) and (−1,4)
(4) (−2,9) and (−1,4)

Use this space for computations.

7 In the diagram below, parallelogram $ABCD$ has vertices $A(1,3)$, $B(5,7)$, $C(10,7)$, and $D(6,3)$. Diagonals $\overline{AC}$ and $\overline{BD}$ intersect at E.

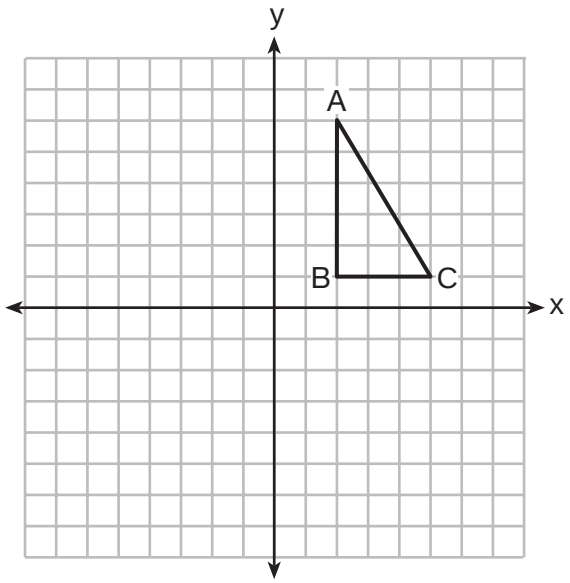


(Not drawn to scale)

What are the coordinates of point E?

(1) (0.5,2)
(2) (4.5,2)
(3) (5.5,5)
(4) (7.5,7)

8 Right triangle ABC is shown in the graph below.

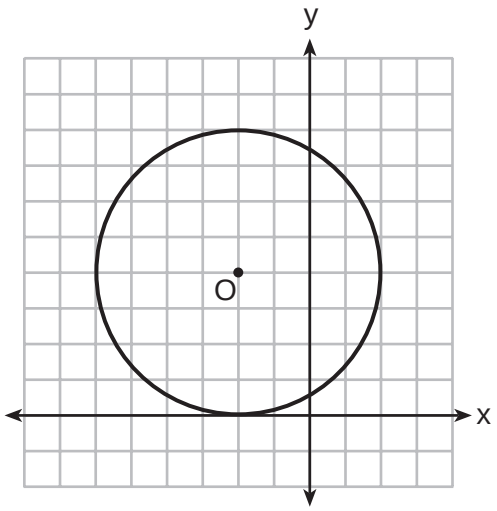


After a reflection over the y-axis, the image of $\triangle ABC$ is $\triangle A'B'C'$. Which statement is *not* true?

(1) $\overline{BC} \cong \overline{B'C'}$
(2) $\overline{A'B'} \perp \overline{B'C'}$
(3) $AB = A'B'$
(4) $\overline{AC} \parallel \overline{A'C'}$

Use this space for computations.

9 What is an equation of circle O shown in the graph below?



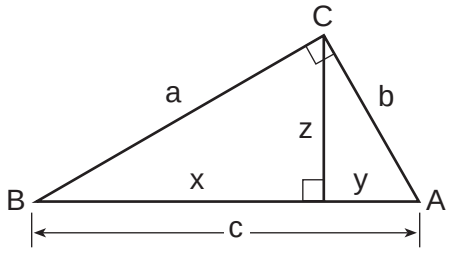
(1) $(x - 2)^2 + (y + 4)^2 = 4$

(2) $(x - 2)^2 + (y + 4)^2 = 16$

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

(4) $(x + 2)^2 + (y - 4)^2 = 16$

10 In the diagram below of right triangle ABC, an altitude is drawn to the hypotenuse $\overline{AB}$.



Which proportion would always represent a correct relationship of the segments?

(1) $\frac{c}{z} = \frac{z}{y}$

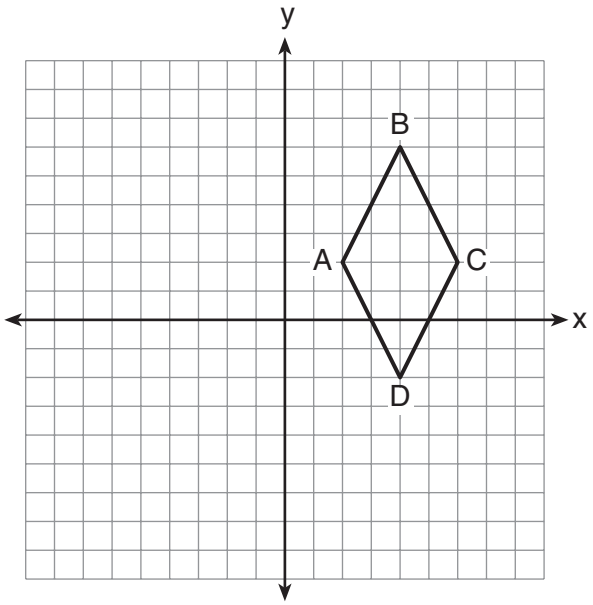
(2) $\frac{c}{a} = \frac{a}{y}$

(3) $\frac{x}{z} = \frac{z}{y}$

(4) $\frac{y}{b} = \frac{b}{x}$

Use this space for computations.

11 Quadrilateral *ABCD* is graphed on the set of axes below.



Which quadrilateral best classifies *ABCD*?

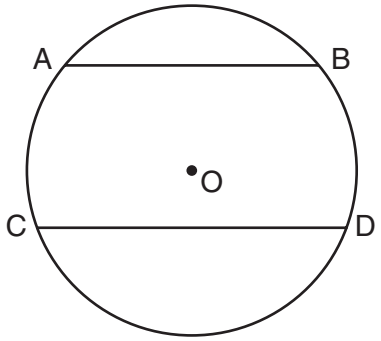
(1) trapezoid
(2) rectangle
(3) rhombus
(4) square

12 Circle *O* is represented by the equation $(x + 3)^2 + (y - 5)^2 = 48$. The coordinates of the center and the length of the radius of circle *O* are

(1) $(-3,5)$ and $4\sqrt{3}$
(2) $(-3,5)$ and 24
(3) $(3,-5)$ and $4\sqrt{3}$
(4) $(3,-5)$ and 24

Use this space for computations.

13 In the diagram below of circle O, chord $\overline{AB}$ is parallel to chord $\overline{CD}$.



A correct justification for $m\overset{\frown}{AC} = m\overset{\frown}{BD}$ in circle O is

(1) parallel chords intercept congruent arcs

(2) congruent chords intercept congruent arcs

(3) if two chords are parallel, then they are congruent

(4) if two chords are equidistant from the center, then the arcs they intercept are congruent

14 What is the slope of a line perpendicular to the line whose equation is $3x - 7y + 14 = 0$?

(1) $\frac{3}{7}$

(2) $-\frac{7}{3}$

(3) 3

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

15 Line segment AB has endpoint A located at the origin. Line segment AB is longest when the coordinates of B are

(1) (3,7)

(2) (2,−8)

(3) (−6,4)

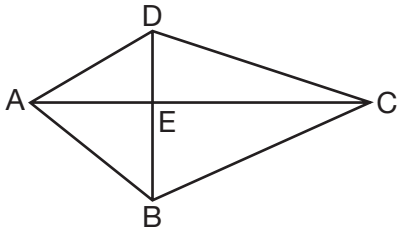
(4) (−5,−5)

Use this space for computations.

16 In $\triangle FGH$, $m\angle F = m\angle H$, $GF = x + 40$, $HF = 3x - 20$, and $GH = 2x + 20$. The length of $\overline{GH}$ is

(1) 20
(2) 40
(3) 60
(4) 80

17 In the diagram below of quadrilateral $ABCD$, diagonals $\overline{AEC}$ and $\overline{BED}$ are perpendicular at E.



Which statement is always true based on the given information?

(1) $\overline{DE} \cong \overline{EB}$
(2) $\overline{AD} \cong \overline{AB}$
(3) $\angle DAC \cong \angle BAC$
(4) $\angle AED \cong \angle CED$

18 Which set of numbers could represent the lengths of the sides of a right triangle?

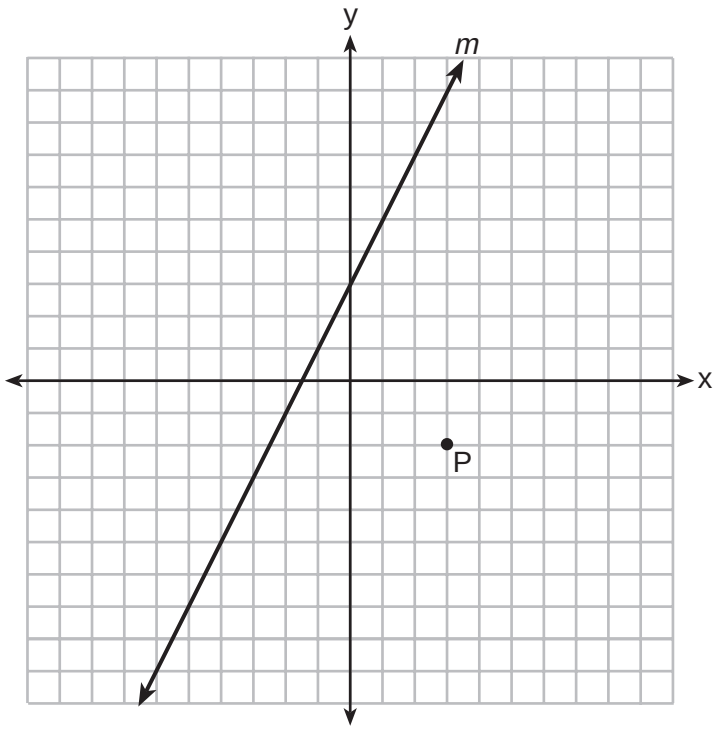
(1) {2, 3, 4}
(2) {5, 9, 13}
(3) {7, 7, 12}
(4) {8, 15, 17}

19 In quadrilateral $ABCD$, the diagonals bisect its angles. If the diagonals are *not* congruent, quadrilateral $ABCD$ must be a

(1) square
(2) rectangle
(3) rhombus
(4) trapezoid

Use this space for computations.

20 Line m and point P are shown in the graph below.



Which equation represents the line passing through P and parallel to line m?

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

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

(3) $y - 3 = -\frac{1}{2}(x + 2)$

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

21 Which compound statement is true?

(1) A square has four sides or a hexagon has eight sides.

(2) A square has four sides and a hexagon has eight sides.

(3) If a square has four sides, then a hexagon has eight sides.

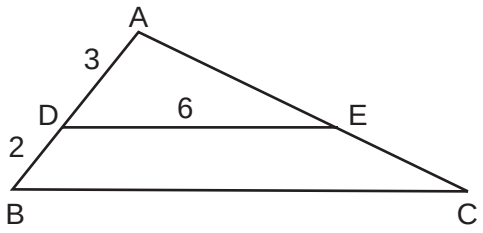
(4) A square has four sides if and only if a hexagon has eight sides.

Use this space for computations.

22 In $\triangle CAT$, $m\angle C = 65$, $m\angle A = 40$, and B is a point on side $\overline{CA}$, such that $\overline{TB} \perp \overline{CA}$. Which line segment is shortest?

(1) $\overline{CT}$
(2) $\overline{BC}$
(3) $\overline{TB}$
(4) $\overline{AT}$

23 In the diagram of $\triangle ABC$ below, $\overline{DE} \parallel \overline{BC}$, $AD = 3$, $DB = 2$, and $DE = 6$.



What is the length of $\overline{BC}$?

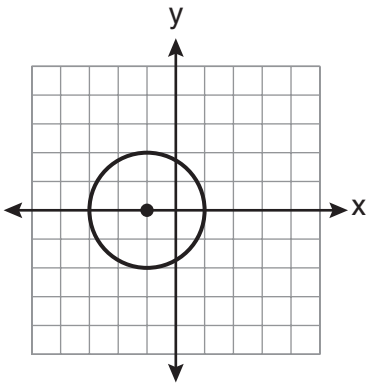
(1) 12
(2) 10
(3) 8
(4) 4

24 In $\triangle ABC$, an exterior angle at C measures 50°. If $m\angle A > 30$, which inequality must be true?

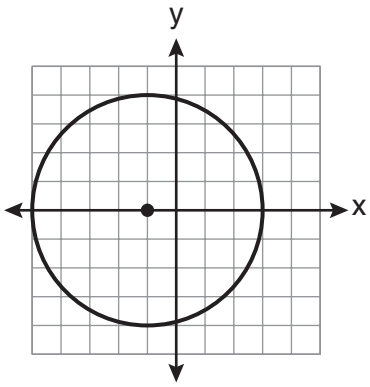
(1) $m\angle B < 20$
(2) $m\angle B > 20$
(3) $m\angle BCA < 130$
(4) $m\angle BCA > 130$

Use this space for computations.

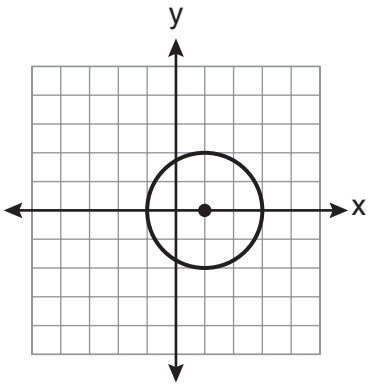
25 Which graph represents the graph of the equation $(x - 1)^2 + y^2 = 4$?



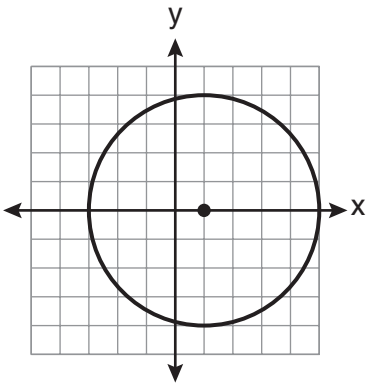
(1)



(3)



(2)



(4)

26 The equations of lines k, p, and m are given below:

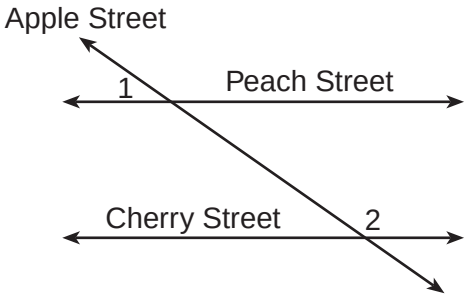
k: $x + 2y = 6$
p: $6x + 3y = 12$
m: $-x + 2y = 10$

Which statement is true?

(1) $p \perp m$
(2) $m \perp k$
(3) $k \parallel p$
(4) $m \parallel k$

Use this space for computations.

27 Peach Street and Cherry Street are parallel. Apple Street intersects them, as shown in the diagram below.



If $m\angle 1 = 2x + 36$ and $m\angle 2 = 7x - 9$, what is $m\angle 1$?

(1) 9
(2) 17
(3) 54
(4) 70

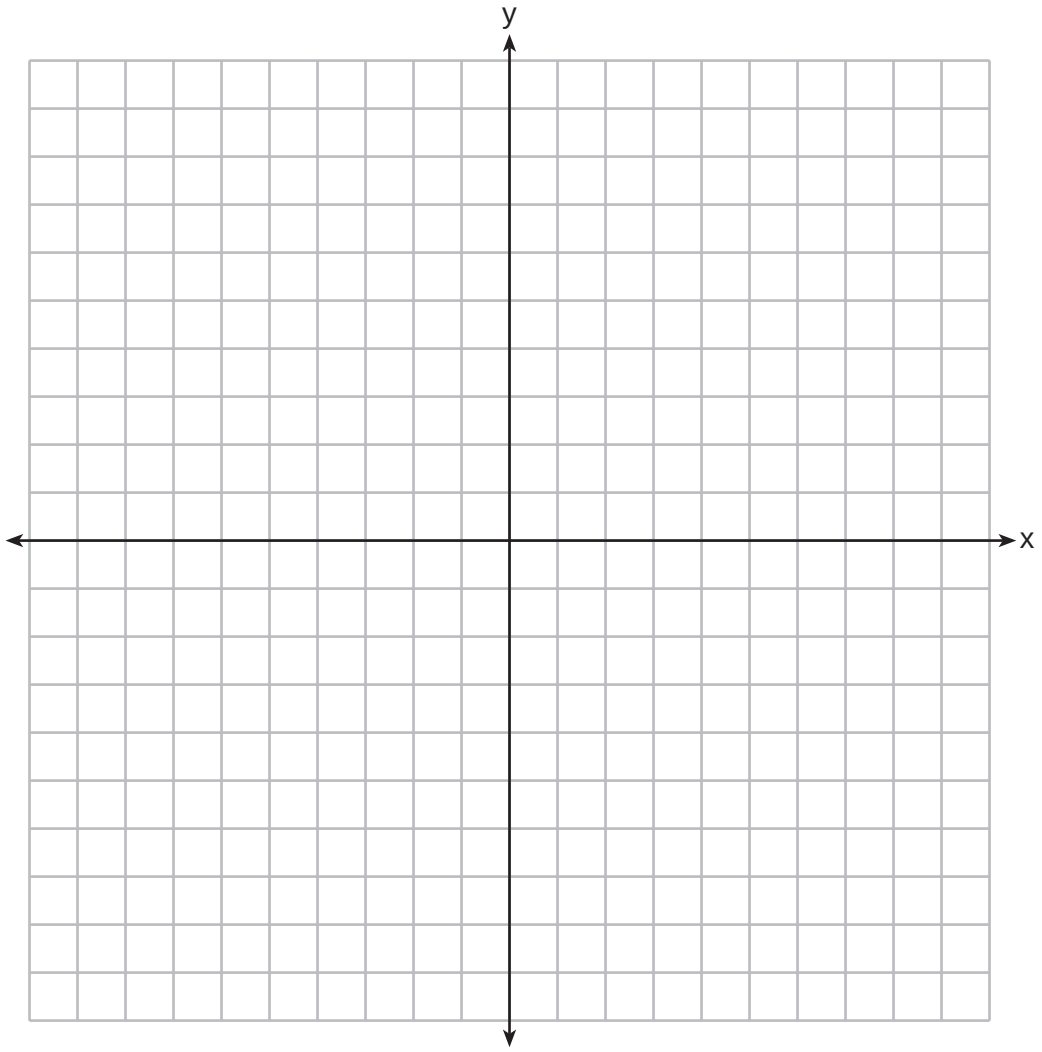
28 A regular pyramid has a height of 12 centimeters and a square base. If the volume of the pyramid is 256 cubic centimeters, how many centimeters are in the length of one side of its base?

(1) 8
(2) 16
(3) 32
(4) 64

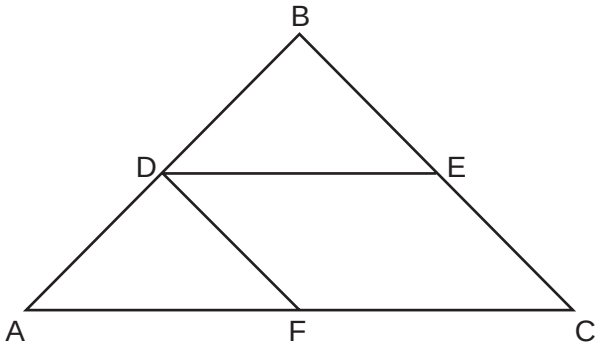
Part II

Answer all 6 questions in this part. Each correct answer will receive 2 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [12]

29 Triangle ABC has coordinates $A(-2,1)$, $B(3,1)$, and $C(0,-3)$. On the set of axes below, graph and label $\triangle A'B'C'$, the image of $\triangle ABC$ after a dilation of 2.



30 In the diagram below of $\triangle ABC$, $\overline{DE}$ and $\overline{DF}$ are midsegments.

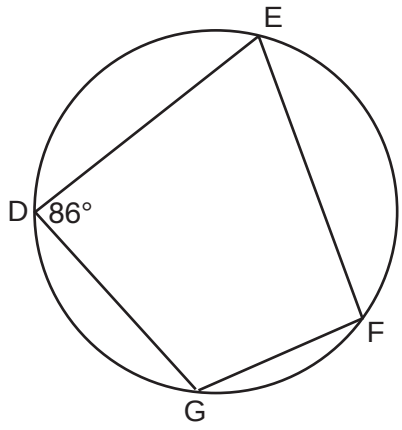


(Not drawn to scale)

If $DE = 9$, and $BC = 17$, determine and state the perimeter of quadrilateral $FDEC$.

31 The image of $\triangle ABC$ under a translation is $\triangle A'B'C'$. Under this translation, $B(3,-2)$ maps onto $B'(1,-1)$. Using this translation, the coordinates of image A' are $(-2,2)$. Determine and state the coordinates of point A.

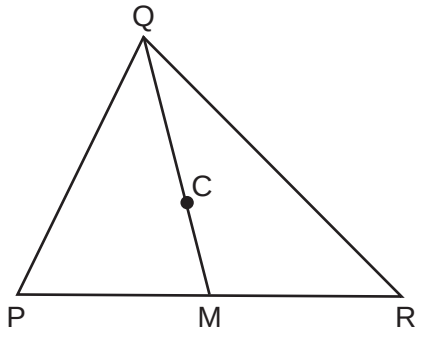
32 As shown in the diagram below, quadrilateral *DEFG* is inscribed in a circle and m$\angle D = 86$.



Determine and state m$\overset{\frown}{GFE}$.

Determine and state m$\angle F$.

33 In the diagram below, $\overline{QM}$ is a median of triangle PQR and point C is the centroid of triangle PQR.



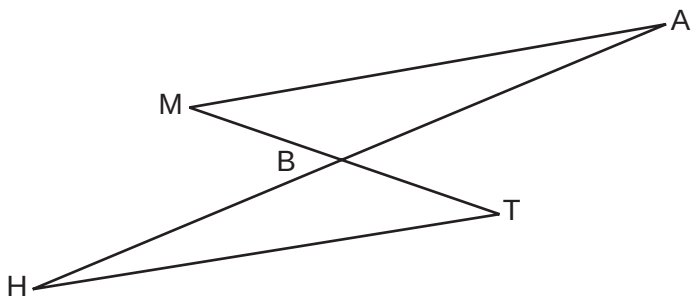
If $QC = 5x$ and $CM = x + 12$, determine and state the length of $\overline{QM}$.

34 The sum of the interior angles of a regular polygon is 540°. Determine and state the number of degrees in one interior angle of the polygon.

Part III

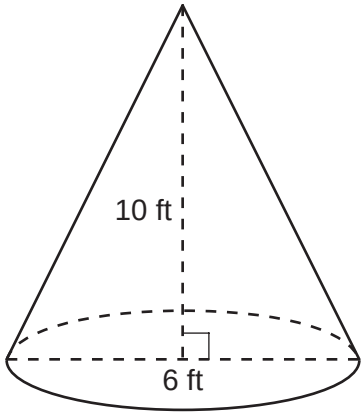
Answer all 3 questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [12]

35 Given: $\overline{MT}$ and $\overline{HA}$ intersect at B, $\overline{MA} \parallel \overline{HT}$, and $\overline{MT}$ bisects $\overline{HA}$



Prove: $\overline{MA} \cong \overline{HT}$

36 A right circular cone has an altitude of 10 ft and the diameter of the base is 6 ft as shown in the diagram below. Determine and state the lateral area of the cone, to the *nearest tenth of a square foot*.



37 Use a compass and straightedge to divide line segment *AB* below into four congruent parts. [Leave all construction marks.]

Part IV

Answer the question in this part. A correct answer will receive 6 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. A correct numerical answer with no work shown will receive only 1 credit. The answer should be written in pen, except for graphs and drawings, which should be done in pencil. [6]

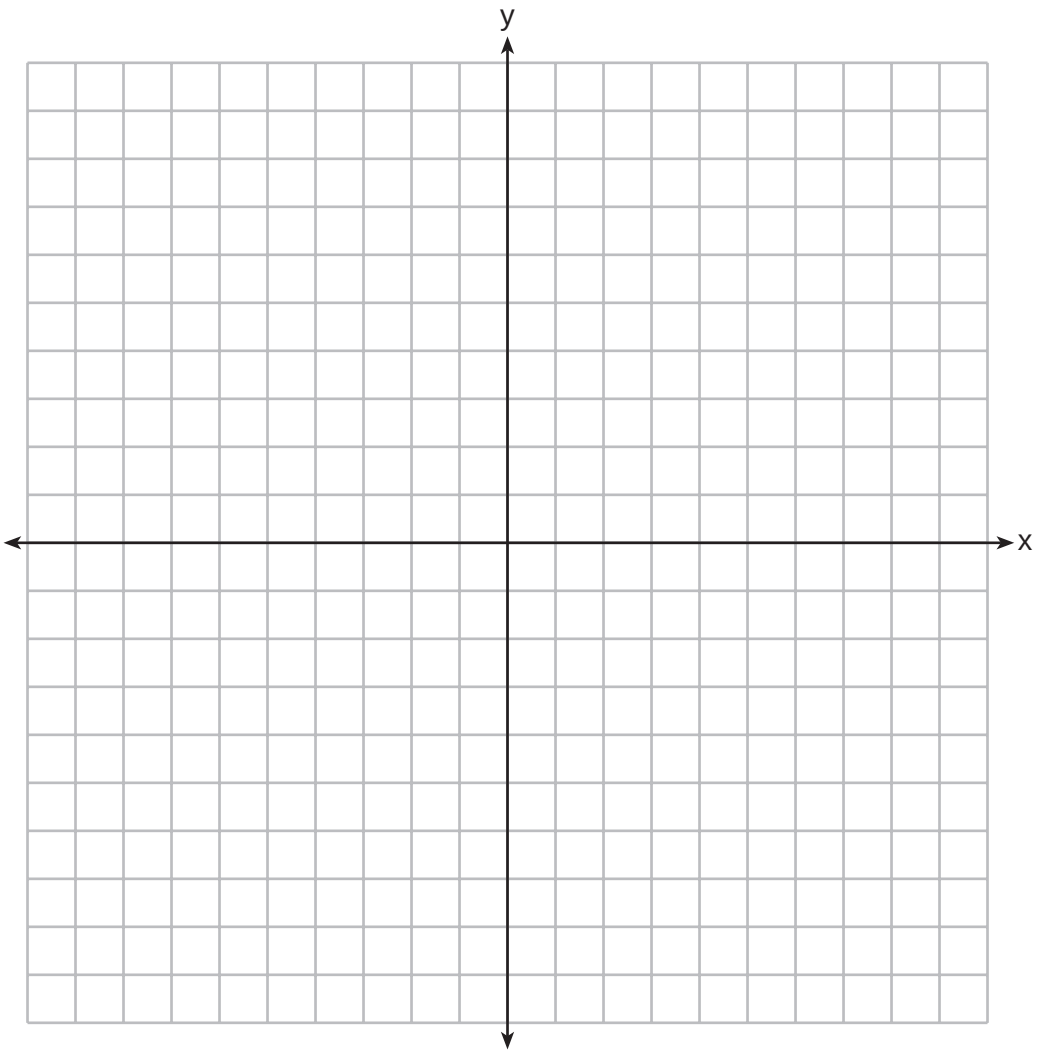
38 On the set of axes below, graph the locus of points 5 units from the point $(3,-2)$.

Write an equation that represents this locus.

On the same set of axes, graph the locus of points equidistant from the points $(0,-6)$ and $(2,-4)$.

Write an equation that represents this locus.

State the coordinates of all points that satisfy *both* conditions.



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Reference Sheet

Volume	Cylinder	$V = Bh$ where B is the area of the base
	Pyramid	$V = \frac{1}{3}Bh$ where B is the area of the base
	Right Circular Cone	$V = \frac{1}{3}Bh$ where B is the area of the base
	Sphere	$V = \frac{4}{3}\pi r^3$

Lateral Area (L)	Right Circular Cylinder	$L = 2\pi rh$
	Right Circular Cone	$L = \pi rl$ where l is the slant height

Surface Area	Sphere	$SA = 4\pi r^2$

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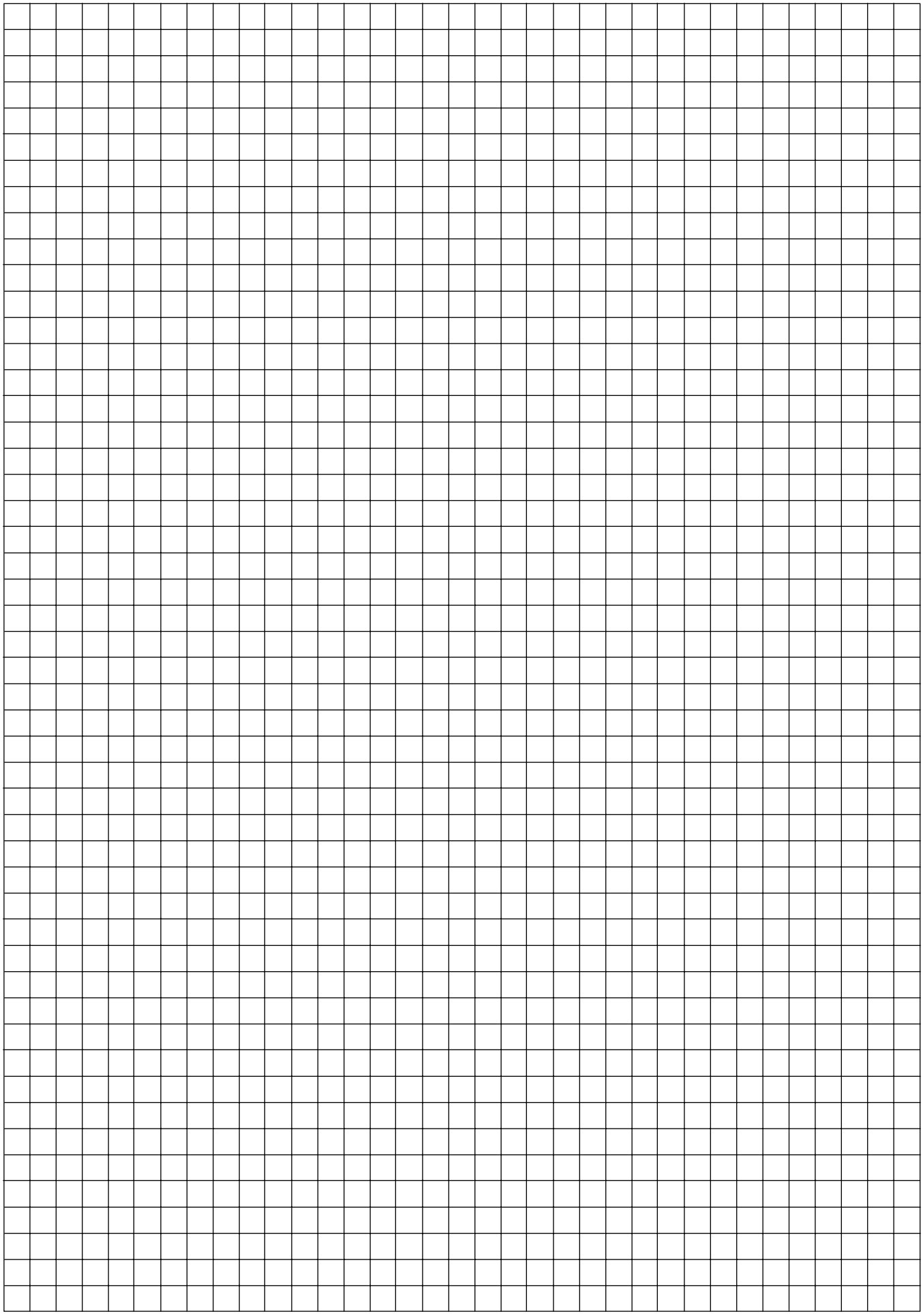
Scrap Graph Paper — This sheet will *not* be scored.



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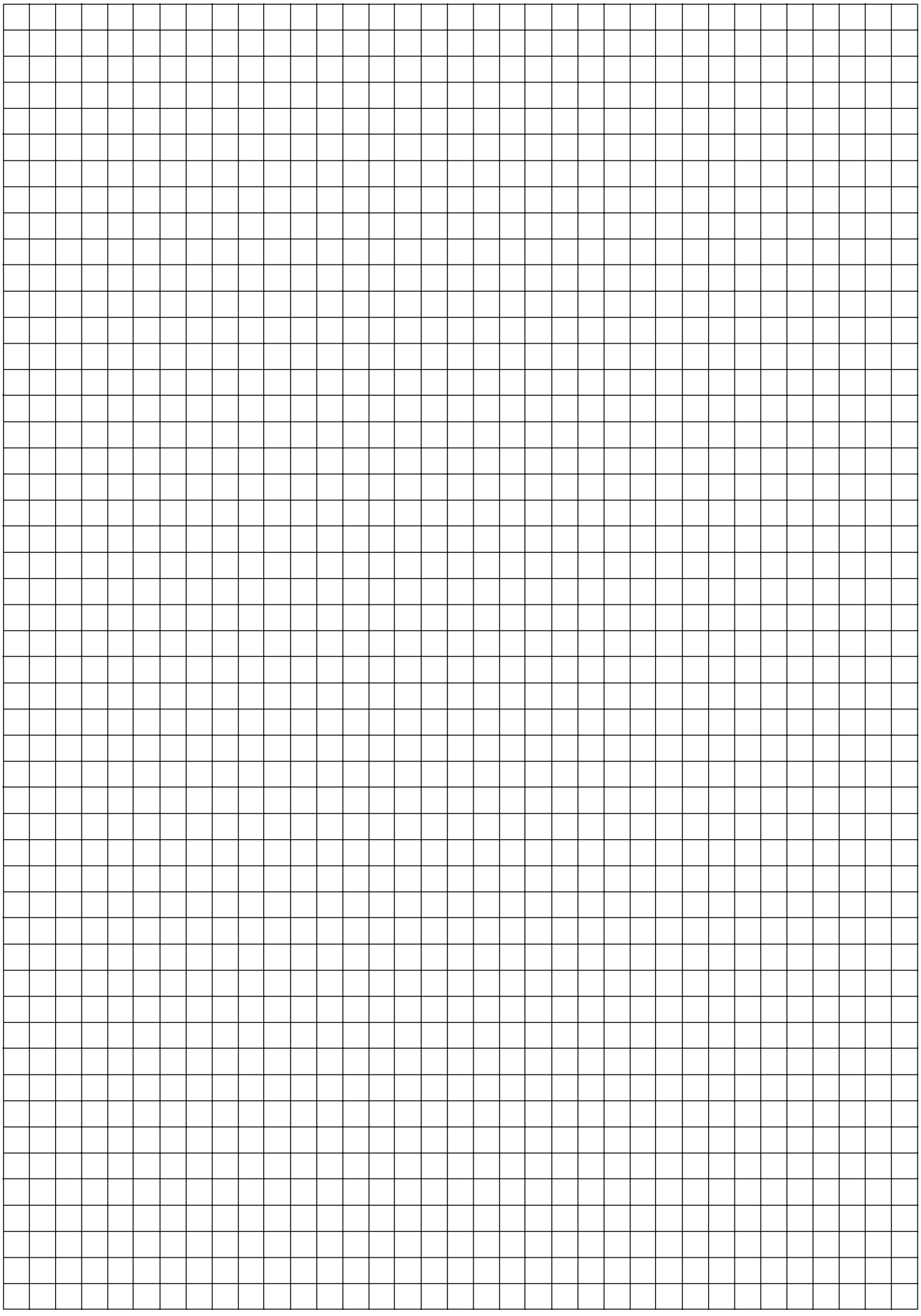

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GEOMETRY

FOR TEACHERS ONLY

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SCORING KEY AND RATING GUIDE

Mechanics of Rating

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

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

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

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

Raters should record the student's scores for all questions and the total raw score on the student's separate answer sheet. Then the student's total raw score should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: http://www.p12.nysed.gov/assessment/ on Wednesday, August 13, 2014. Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that, for each administration, the conversion chart provided for that administration be used to determine the student's final score. The student's scale score should be entered in the box provided on the student's separate answer sheet. The scale score is the student's final examination score.

If the student's responses for the multiple-choice questions are being hand scored prior to being scanned, the scorer must be careful not to make any marks on the answer sheet except to record the scores in the designated score boxes. Marks elsewhere on the answer sheet will interfere with the accuracy of the scanning.

Part I

Allow a total of 56 credits, 2 credits for each of the following.

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

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. Check this web site at: http://www.p12.nysed.gov/assessment/ and select the link "Scoring Information" for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and several times throughout the Regents Examination period.

General Rules for Applying Mathematics Rubrics

I. General Principles for Rating

The rubrics for the constructed-response questions on the Regents Examination in Geometry 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*, use their own professional judgment, confer with other mathematics teachers, and/or contact the State Education Department for guidance. During each Regents Examination administration period, rating questions may be referred directly to the Education Department. The contact numbers are sent to all schools before each administration period.

II. Full-Credit Responses

A full-credit response provides a complete and correct answer to all parts of the question. Sufficient work is shown to enable the rater to determine how the student arrived at the correct answer.

When the rubric for the full-credit response includes one or more examples of an acceptable method for solving the question (usually introduced by the phrase "such as"), it does not mean that there are no additional acceptable methods of arriving at the correct answer. Unless otherwise specified, mathematically correct alternative solutions should be awarded credit. The only exceptions are those questions that specify the type of solution that must be used; e.g., an algebraic solution or a graphic solution. A correct solution using a method other than the one specified is awarded half the credit of a correct solution using the specified method.

III. Appropriate Work

Full-Credit Responses: The directions in the examination booklet for all the constructed-response questions state: "Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc." The student has the responsibility of providing the correct answer ***and*** showing how that answer was obtained. The student must "construct" the response; the teacher should not have to search through a group of seemingly random calculations scribbled on the student paper to ascertain what method the student may have used.

Responses With Errors: Rubrics that state "Appropriate work is shown, but…" are intended to be used with solutions that show an essentially complete response to the question but contain certain types of errors, whether computational, rounding, graphing, or conceptual. If the response is incomplete; i.e., an equation is written but not solved or an equation is solved but not all of the parts of the question are answered, appropriate work has ***not*** been shown. Other rubrics address incomplete responses.

IV. Multiple Errors

Computational Errors, Graphing Errors, and Rounding Errors: Each of these types of errors results in a 1-credit deduction. Any combination of two of these types of errors results in a 2-credit deduction. No more than 2 credits should be deducted for such mechanical errors in 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.

If a response shows repeated occurrences of the same conceptual error, the student should not be penalized twice. If the same conceptual error is repeated in responses to other questions, credit should be deducted in each response.

For 4- and 6-credit questions, if a response shows one conceptual error and one computational, graphing, or rounding error, the teacher must award credit that takes into account both errors. Refer to the rubric for specific scoring guidelines.

Part II

For each question, use the specific criteria to award a maximum of 2 credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(29) **[2]** $\triangle A'B'C'$ is graphed and labeled correctly.

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

or

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

or

[1] $\triangle A'B'C'$ is graphed correctly, but the points are not labeled or are labeled incorrectly.

or

[1] $A'(-4,2)$, $B'(6,2)$, and $C'(0,-6)$ are stated correctly, but $\triangle A'B'C'$ is not graphed.

[0] $(-4,2)$, $(6,2)$, and $(0,-6)$ are stated, but not labeled, and $\triangle A'B'C'$ is not graphed.

or

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

(30) **[2]** 35, and correct work is shown, such as a correctly labeled 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] The measures of $\overline{FC}$, $\overline{DF}$, and $\overline{EC}$ are found, but no further correct work is shown.

or

[1] 35, 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.

(31) **[2]** (0,1), and correct work is shown.

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

or

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

or

[1] The correct translation is stated, but no further correct work is shown.

or

[1] (0,1), 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.

(32) **[2]** 172 and 94, and correct work is shown.

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

or

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

or

[1] Appropriate work is shown to find 172 or 94, but no further correct work is shown.

or

[1] 172 and 94, 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) **[2]** 60, and correct work is shown.

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

or

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

or

[1] Appropriate work is shown to find $x = 8$, but the length of $\overline{QM}$ is not stated.

or

[1] 60, 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]** 108, and correct work is shown.

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

or

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

or

[1] Appropriate work is shown to find 5, the number of sides, but no further correct work is shown.

or

[1] 108, 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 III

For each question, use the specific criteria to award a maximum of 4 credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(35) **[4]** A complete and correct proof that includes a concluding statement is written.

[3] A proof is written that demonstrates a thorough understanding of the method of proof and contains no conceptual errors, but one statement and/or reason is missing or is incorrect or no concluding statement is written.

or

[3] $\triangle MAB \cong \triangle THB$ is proven, but no further correct work is shown.

[2] A proof is written that demonstrates a good understanding of the method of proof and contains no conceptual errors, but two statements and/or reasons are missing or are incorrect.

or

[2] A proof is written that demonstrates a good understanding of the method of proof, but one conceptual error is made.

[1] Only one correct statement and reason are written.

[0] The "given" and/or the "prove" statements are written, but no further correct relevant statements are written.

or

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

(36) **[4]** 98.4, and correct work is shown.

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

or

[3] Appropriate work is shown, but the lateral area is expressed as an appropriate decimal in terms of π.

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

or

[2] Appropriate work is shown, but one conceptual error is made, such as using 10 as the slant height.

or

[2] Appropriate work is shown to find $\sqrt{109}$, the slant height, but no further correct work is shown.

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

or

[1] 98.4, 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) **[4]** A correct construction is drawn showing all appropriate arcs, and $\overline{AB}$ is divided into four congruent segments.

[3] A correct construction is drawn showing all appropriate arcs for two perpendicular bisectors, and two quarter segments and a half segment of $\overline{AB}$ are shown, but no further correct work is shown.

or

[3] A correct construction is drawn for the perpendicular bisector of $\overline{AB}$. All construction arcs are drawn to bisect each congruent segment of $\overline{AB}$, but the midpoints are not indicated.

[2] A correct construction is drawn for only the perpendicular bisector of $\overline{AB}$, but no further correct work is shown.

[1] All construction arcs are drawn for the perpendicular bisector of $\overline{AB}$, but the midpoint is not indicated.

[0] A drawing that is not an appropriate construction 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 IV

For this question, use the specific criteria to award a maximum of 6 credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(38) **[6]** Both loci are graphed correctly, $(x - 3)^2 + (y + 2)^2 = 25$ and $y = -x - 4$ or equivalent equations are written, and $(-2,-2)$ and $(3,-7)$ are stated.

[5] Both loci are graphed, but one graphing error is made. Appropriate equations are written, and appropriate coordinates are stated.

or

[5] Both loci are graphed correctly, $(x - 3)^2 + (y + 2)^2 = 25$ and $y = -x - 4$ are written. Either $(-2,-2)$ or $(3,-7)$ is stated.

or

[5] Both loci are graphed correctly, $(x - 3)^2 + (y + 2)^2 = 25$ and $y = -x - 4$ are written. Appropriate intersecting points are marked on the graph.

or

[5] Both loci are graphed correctly, $(-2,-2)$ and $(3,-7)$ are stated. Either $y = -x - 4$ or $(x - 3)^2 + (y + 2)^2 = 25$ is written.

[4] Both loci are graphed, but two or more graphing errors are made. Appropriate equations are written, and appropriate coordinates are stated.

or

[4] Both loci are graphed correctly, $(x - 3)^2 + (y + 2)^2 = 25$ and $y = -x - 4$ are written. The coordinates of the points of intersection are not stated or are stated incorrectly.

or

[4] Both loci are graphed correctly, and $(-2,-2)$ and $(3,-7)$ are stated. The equations are not written or are written incorrectly.

or

[4] $(x - 3)^2 + (y + 2)^2 = 25$ and $y = -x - 4$ are written. Appropriate work is shown to find $(-2,-2)$ and $(3,-7)$, but neither locus is graphed.

[3] Both loci are graphed, but one conceptual error is made. Appropriate equations are written, and appropriate coordinates are stated.

or

[3] Both loci are graphed correctly. Either $(x - 3)^2 + (y + 2)^2 = 25$ or $y = -x - 4$ is written. The coordinates of the points of intersection are not stated or are stated incorrectly.

or

[3] Both loci are graphed correctly. Either $(-2,-2)$ or $(3,-7)$ is stated. The equations are not written or are written incorrectly.

[2] Both loci are graphed, but one conceptual error and one graphing error are made. Appropriate equations are written, and appropriate coordinates are stated.

or

[2] Both loci are graphed correctly, but no further correct work is shown.

or

[2] Only one locus is graphed correctly, and appropriate points of intersection for the loci are stated. No further correct work is shown.

or

[2] One locus is graphed correctly, and its equation is written correctly. No further correct work is shown.

or

[2] $(x - 3)^2 + (y + 2)^2 = 25$ and $y = -x - 4$ are written. No further correct work is shown.

[1] Appropriate work is shown, but one conceptual error and two or more graphing errors are made. Appropriate equations are written, and appropriate coordinates are stated.

or

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

or

[1] $(x - 3)^2 + (y + 2)^2 = 25$ or $y = -x - 4$ is written. No further work is shown.

or

[1] $(-2,-2)$ and $(3,-7)$, 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.

Map to Core Curriculum

Content Band	Item Numbers
Geometric Relationships	1, 28, 36
Constructions	37
Locus	38
Informal and Formal Proofs	2, 3, 10, 13, 16, 17, 18, 19, 21, 22, 23, 24, 27, 30, 32, 33, 34, 35
Transformational Geometry	5, 8, 29, 31
Coordinate Geometry	4, 6, 7, 9, 11, 12, 14, 15, 20, 25, 26

Regents Examination in Geometry
August 2014
Chart for Converting Total Test Raw Scores to Final Examination Scores (Scale Scores)

The *Chart for Determining the Final Examination Score for the August 2014 Regents Examination in Geometry* will be posted on the Department's web site at: http://www.p12.nysed.gov/assessment/ on Wednesday, August 13, 2014. Conversion charts provided for previous administrations of the Regents Examination in Geometry must NOT be used to determine students' final scores for this administration.

Online Submission of Teacher Evaluations of the Test to the Department

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

1. Go to http://www.forms2.nysed.gov/emsc/osa/exameval/reexameval.cfm.

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 Geometry – August 2014

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

Raw Score	Scale Score
86	**100**
85	**99**
84	**97**
83	**96**
82	**95**
81	**94**
80	**92**
79	**91**
78	**90**
77	**89**
76	**89**
75	**88**
74	**87**
73	**86**
72	**85**
71	**84**
70	**84**
69	**83**
68	**82**
67	**82**
66	**81**
65	**80**

Raw Score	Scale Score
64	**80**
63	**79**
62	**79**
61	**78**
60	**78**
59	**77**
58	**76**
57	**76**
56	**75**
55	**75**
54	**74**
53	**73**
52	**73**
51	**72**
50	**72**
49	**71**
48	**70**
47	**70**
46	**69**
45	**68**
44	**67**
43	**67**

Raw Score	Scale Score
42	**66**
41	**65**
40	**64**
39	**63**
38	**62**
37	**62**
36	**61**
35	**60**
34	**59**
33	**58**
32	**57**
31	**56**
30	**54**
29	**53**
28	**52**
27	**51**
26	**50**
25	**49**
24	**47**
23	**46**
22	**44**
21	**43**

Raw Score	Scale Score
20	**41**
19	**40**
18	**38**
17	**37**
16	**35**
15	**33**
14	**31**
13	**29**
12	**27**
11	**25**
10	**23**
9	**21**
8	**19**
7	**17**
6	**14**
5	**12**
4	**10**
3	**7**
2	**5**
1	**2**
0	**0**

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.

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

Because scale scores corresponding to raw scores in the conversion chart change from one administration to another, it is crucial that for each administration the conversion chart provided for that administration be used to determine the student's final score. The chart above is usable only for this administration of the Regents Examination in Geometry.