The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

GEOMETRY

Wednesday, August 18, 2010 — 8:30 to 11:30 a.m., only

Student Name: _____

School Name: _____

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

This examination has four parts, with a total of 38 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. All work should be written in pen, except graphs and drawings, which should be done in pencil. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc.

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.

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.

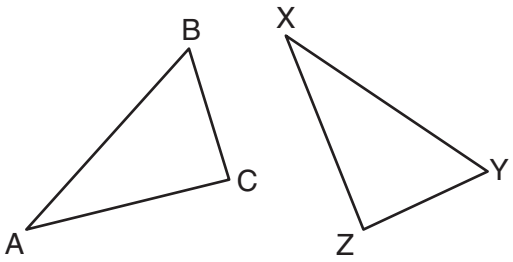
DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN.

Part I

Answer all 28 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. [56]

Use this space for computations.

1 In the diagram below, $\triangle ABC \cong \triangle XYZ$.



Which two statements identify corresponding congruent parts for these triangles?

(1) $\overline{AB} \cong \overline{XY}$ and $\angle C \cong \angle Y$

(2) $\overline{AB} \cong \overline{YZ}$ and $\angle C \cong \angle X$

(3) $\overline{BC} \cong \overline{XY}$ and $\angle A \cong \angle Y$

(4) $\overline{BC} \cong \overline{YZ}$ and $\angle A \cong \angle X$

2 A support beam between the floor and ceiling of a house forms a 90° angle with the floor. The builder wants to make sure that the floor and ceiling are parallel. Which angle should the support beam form with the ceiling?

(1) 45°

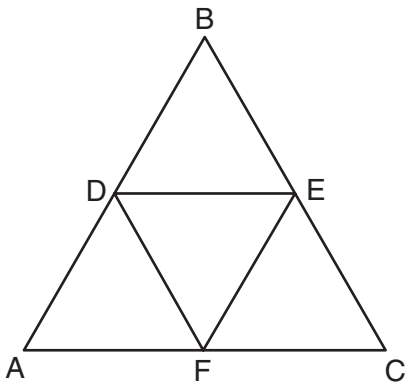
(2) 60°

(3) 90°

(4) 180°

Use this space for computations.

3 In the diagram below, the vertices of $\triangle DEF$ are the midpoints of the sides of equilateral triangle ABC, and the perimeter of $\triangle ABC$ is 36 cm.



What is the length, in centimeters, of $\overline{EF}$?

(1) 6
(2) 12
(3) 18
(4) 4

4 What is the solution of the following system of equations?

$$y = (x + 3)^2 - 4$$
$$y = 2x + 5$$

(1) $(0,-4)$
(2) $(-4,0)$
(3) $(-4,-3)$ and $(0,5)$
(4) $(-3,-4)$ and $(5,0)$

Use this space for computations.

5 One step in a construction uses the endpoints of $\overline{AB}$ to create arcs with the same radii. The arcs intersect above and below the segment. What is the relationship of $\overline{AB}$ and the line connecting the points of intersection of these arcs?

(1) collinear

(2) congruent

(3) parallel

(4) perpendicular

6 If $\triangle ABC \sim \triangle ZXY$, $m\angle A = 50$, and $m\angle C = 30$, what is $m\angle X$?

(1) 30

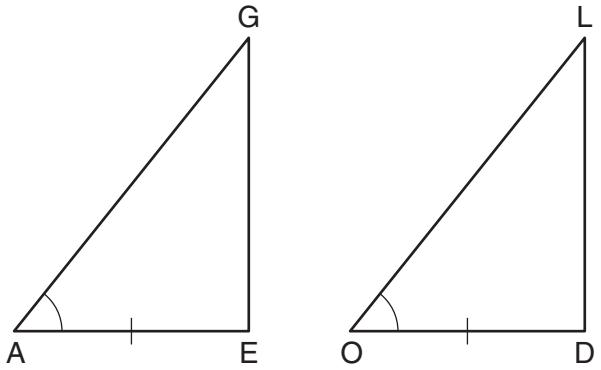
(2) 50

(3) 80

(4) 100

Use this space for computations.

7 In the diagram below of $\triangle AGE$ and $\triangle OLD$, $\angle GAE \cong \angle LOD$, and $\overline{AE} \cong \overline{OD}$.



To prove that $\triangle AGE$ and $\triangle OLD$ are congruent by SAS, what other information is needed?

(1) $\overline{GE} \cong \overline{LD}$

(2) $\overline{AG} \cong \overline{OL}$

(3) $\angle AGE \cong \angle OLD$

(4) $\angle AEG \cong \angle ODL$

8 Point A is not contained in plane $\mathcal{B}$. How many lines can be drawn through point A that will be perpendicular to plane $\mathcal{B}$?

(1) one

(2) two

(3) zero

(4) infinite

9 The equation of a circle is $x^2 + (y - 7)^2 = 16$. What are the center and radius of the circle?

(1) center = (0,7); radius = 4

(2) center = (0,7); radius = 16

(3) center = (0,−7); radius = 4

(4) center = (0,−7); radius = 16

Use this space for computations.

10 What is an equation of the line that passes through the point (7,3) and is parallel to the line $4x + 2y = 10$?

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

(2) $y = -\frac{1}{2}x + \frac{13}{2}$

(3) $y = 2x - 11$

(4) $y = -2x + 17$

11 In $\triangle ABC$, $AB = 7$, $BC = 8$, and $AC = 9$. Which list has the angles of $\triangle ABC$ in order from smallest to largest?

(1) $\angle A, \angle B, \angle C$

(2) $\angle B, \angle A, \angle C$

(3) $\angle C, \angle B, \angle A$

(4) $\angle C, \angle A, \angle B$

12 Tangents $\overline{PA}$ and $\overline{PB}$ are drawn to circle O from an external point, P, and radii $\overline{OA}$ and $\overline{OB}$ are drawn. If $m\angle APB = 40$, what is the measure of $\angle AOB$?

(1) 140°

(2) 100°

(3) 70°

(4) 50°

13 What is the length of the line segment with endpoints $A(-6,4)$ and $B(2,-5)$?

(1) $\sqrt{13}$

(2) $\sqrt{17}$

(3) $\sqrt{72}$

(4) $\sqrt{145}$

Use this space for computations.

14 The lines represented by the equations $y + \frac{1}{2}x = 4$ and $3x + 6y = 12$ are

(1) the same line

(2) parallel

(3) perpendicular

(4) neither parallel nor perpendicular

15 A transformation of a polygon that always preserves both length and orientation is

(1) dilation

(2) translation

(3) line reflection

(4) glide reflection

16 In which polygon does the sum of the measures of the interior angles equal the sum of the measures of the exterior angles?

(1) triangle

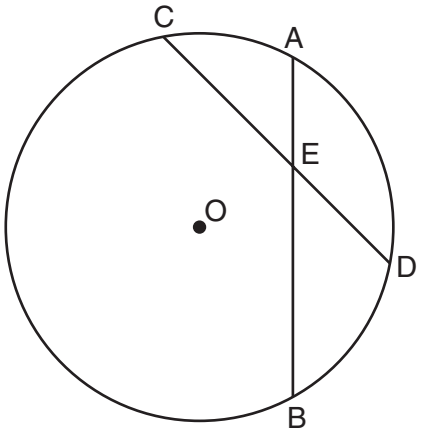
(2) hexagon

(3) octagon

(4) quadrilateral

Use this space for computations.

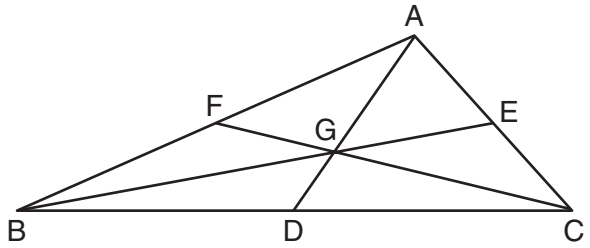
17 In the diagram below of circle O, chords $\overline{AB}$ and $\overline{CD}$ intersect at E.



If $CE = 10$, $ED = 6$, and $AE = 4$, what is the length of $\overline{EB}$?

(1) 15
(2) 12
(3) 6.7
(4) 2.4

18 In the diagram below of $\triangle ABC$, medians $\overline{AD}$, $\overline{BE}$, and $\overline{CF}$ intersect at G.



If $CF = 24$, what is the length of $\overline{FG}$?

(1) 8
(2) 10
(3) 12
(4) 16

Use this space for computations.

19 If a line segment has endpoints $A(3x + 5, 3y)$ and $B(x - 1, -y)$, what are the coordinates of the midpoint of $\overline{AB}$?

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

20 If the surface area of a sphere is represented by 144π, what is the volume in terms of π?

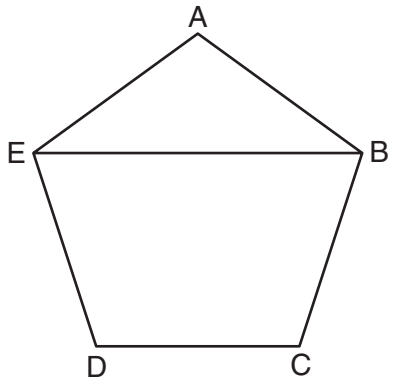
(1) 36π
(2) 48π
(3) 216π
(4) 288π

21 Which transformation of the line $x = 3$ results in an image that is perpendicular to the given line?

(1) $r_{x\text{-axis}}$
(2) $r_{y\text{-axis}}$
(3) $r_{y = x}$
(4) $r_{x = 1}$

Use this space for computations.

22 In the diagram below of regular pentagon $ABCDE$, $\overline{EB}$ is drawn.



What is the measure of $\angle AEB$?

(1) 36°

(2) 54°

(3) 72°

(4) 108°

23 $\triangle ABC$ is similar to $\triangle DEF$. The ratio of the length of $\overline{AB}$ to the length of $\overline{DE}$ is 3:1. Which ratio is also equal to 3:1?

(1) $\frac{\text{m}\angle A}{\text{m}\angle D}$

(2) $\frac{\text{m}\angle B}{\text{m}\angle F}$

(3) $\frac{\text{area of } \triangle ABC}{\text{area of } \triangle DEF}$

(4) $\frac{\text{perimeter of } \triangle ABC}{\text{perimeter of } \triangle DEF}$

24 What is the slope of a line perpendicular to the line whose equation is $2y = -6x + 8$?

(1) -3

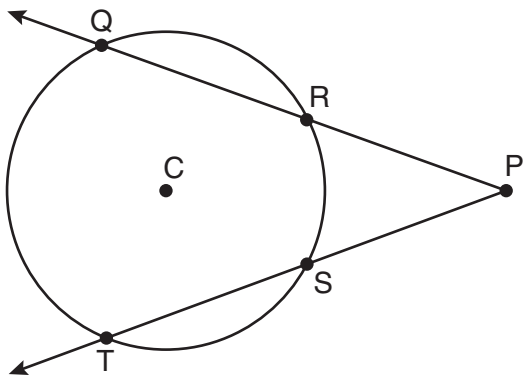
(2) $\frac{1}{6}$

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

(4) -6

Use this space for computations.

25 In the diagram below of circle C, $m\overset{\frown}{QT} = 140$ and $m\angle P = 40$.



What is $m\overset{\frown}{RS}$?

(1) 50

(2) 60

(3) 90

(4) 100

26 Which statement is logically equivalent to "If it is warm, then I go swimming"?

(1) If I go swimming, then it is warm.

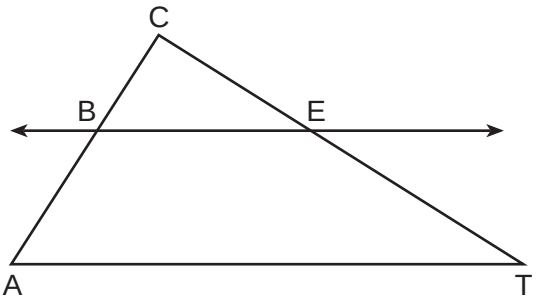
(2) If it is warm, then I do not go swimming.

(3) If I do not go swimming, then it is not warm.

(4) If it is not warm, then I do not go swimming.

Use this space for computations.

27 In the diagram below of $\triangle ACT$, $\overleftrightarrow{BE} \parallel \overline{AT}$.



If $CB = 3$, $CA = 10$, and $CE = 6$, what is the length of $\overline{ET}$?

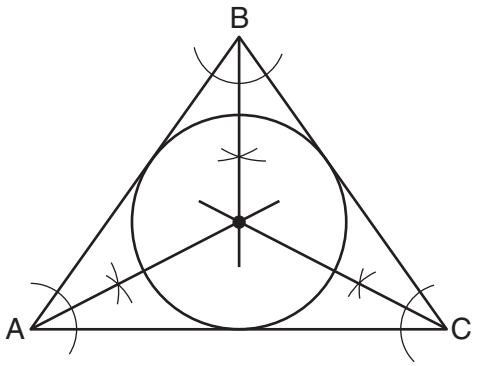
(1) 5

(2) 14

(3) 20

(4) 26

28 Which geometric principle is used in the construction shown below?



(1) The intersection of the angle bisectors of a triangle is the center of the inscribed circle.

(2) The intersection of the angle bisectors of a triangle is the center of the circumscribed circle.

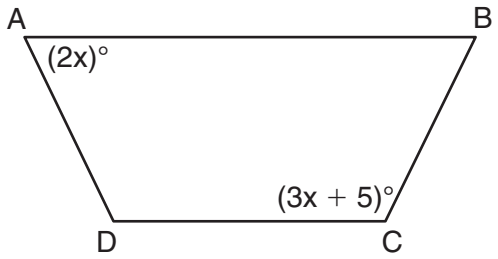
(3) The intersection of the perpendicular bisectors of the sides of a triangle is the center of the inscribed circle.

(4) The intersection of the perpendicular bisectors of the sides of a triangle is the center of the circumscribed circle.

Part II

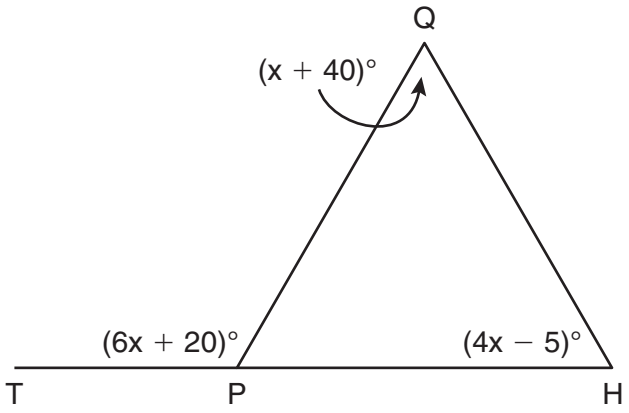
Answer all 6 questions in this part. Each correct answer will receive 2 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit.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

29 The diagram below shows isosceles trapezoid $ABCD$ with $\overline{AB} \parallel \overline{DC}$ and $\overline{AD} \cong \overline{BC}$. If $m\angle BAD = 2x$ and $m\angle BCD = 3x + 5$, find $m\angle BAD$.



30 A right circular cone has a base with a radius of 15 cm, a vertical height of 20 cm, and a slant height of 25 cm. Find, in terms of π, the number of square centimeters in the lateral area of the cone.

31 In the diagram below of $\triangle HQP$, side $\overline{HP}$ is extended through P to T, $m\angle QPT = 6x + 20$, $m\angle HQP = x + 40$, and $m\angle PHQ = 4x - 5$. Find $m\angle QPT$.

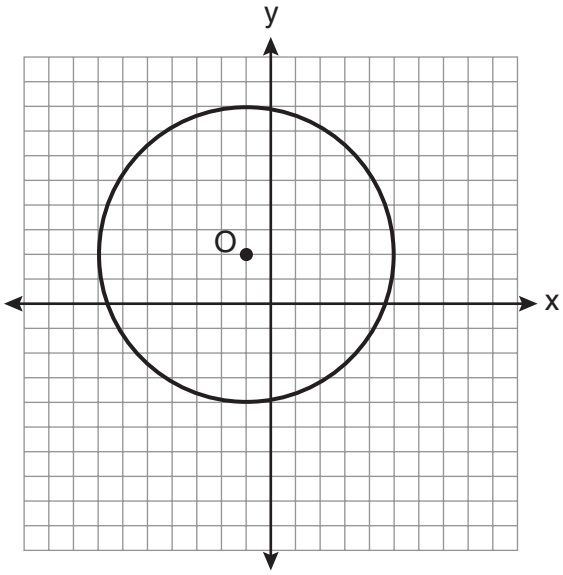


(Not drawn to scale)

32 On the line segment below, use a compass and straightedge to construct equilateral triangle *ABC*. [Leave all construction marks.]

33 In the diagram below, car *A* is parked 7 miles from car *B*. Sketch the points that are 4 miles from car *A* and sketch the points that are 4 miles from car *B*. Label with an **X** all points that satisfy both conditions.

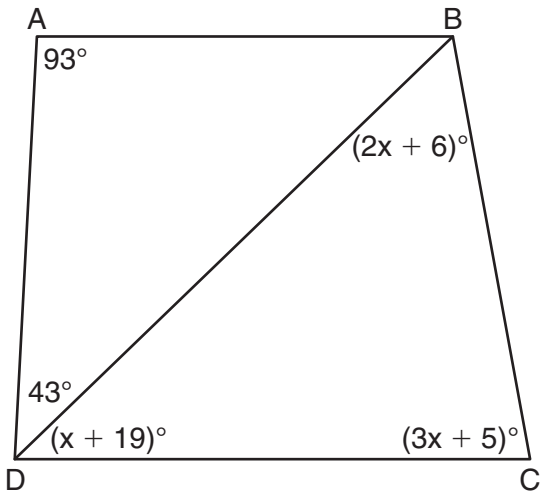
34 Write an equation for circle *O* shown on the graph below.



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]

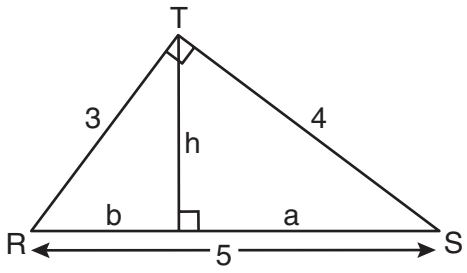
35 In the diagram below of quadrilateral $ABCD$ with diagonal $\overline{BD}$, $m\angle A = 93$, $m\angle ADB = 43$, $m\angle C = 3x + 5$, $m\angle BDC = x + 19$, and $m\angle DBC = 2x + 6$. Determine if $\overline{AB}$ is parallel to $\overline{DC}$. Explain your reasoning.



36 The coordinates of the vertices of $\triangle ABC$ are $A(1,3)$, $B(-2,2)$, and $C(0,-2)$. On the grid below, graph and label $\triangle A''B''C''$, the result of the composite transformation $D_2 \circ T_{3,-2}$. State the coordinates of A'', B'', and C''.

[20]

37 In the diagram below, $\triangle RST$ is a 3-4-5 right triangle. The altitude, h, to the hypotenuse has been drawn. Determine the length of h.



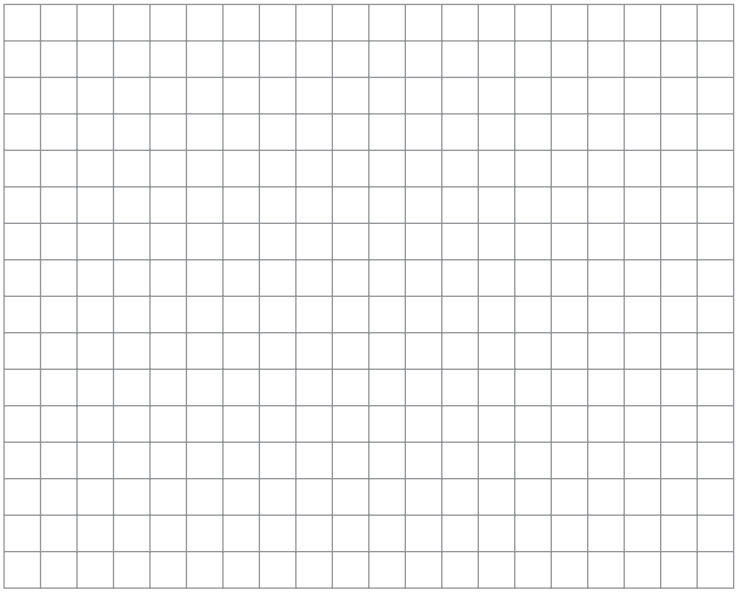
Part IV

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. [6]

38 Given: Quadrilateral $ABCD$ has vertices $A(-5,6)$, $B(6,6)$, $C(8,-3)$, and $D(-3,-3)$.

Prove: Quadrilateral $ABCD$ is a parallelogram but is neither a rhombus nor a rectangle.

[The use of the grid below is optional.]



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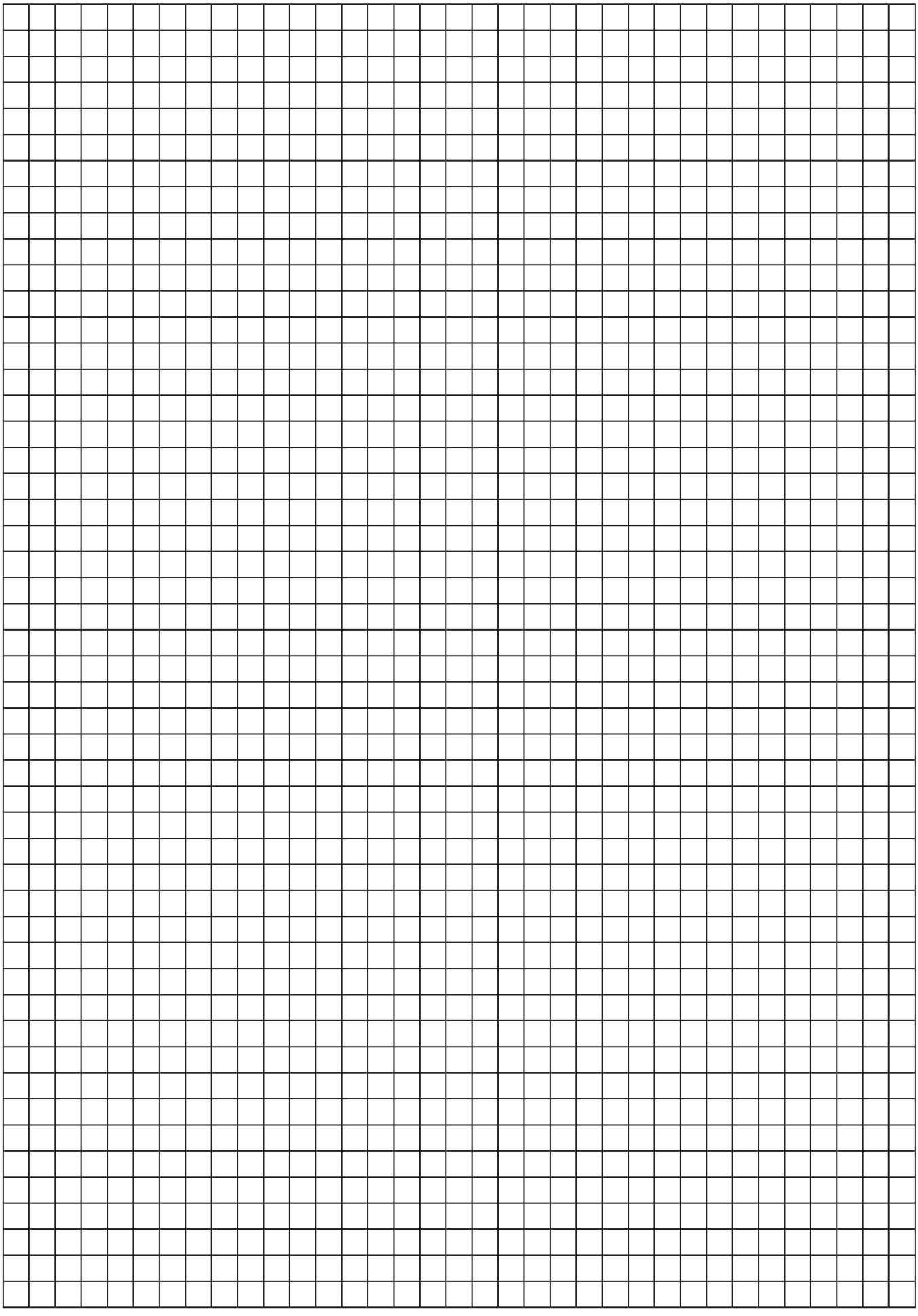
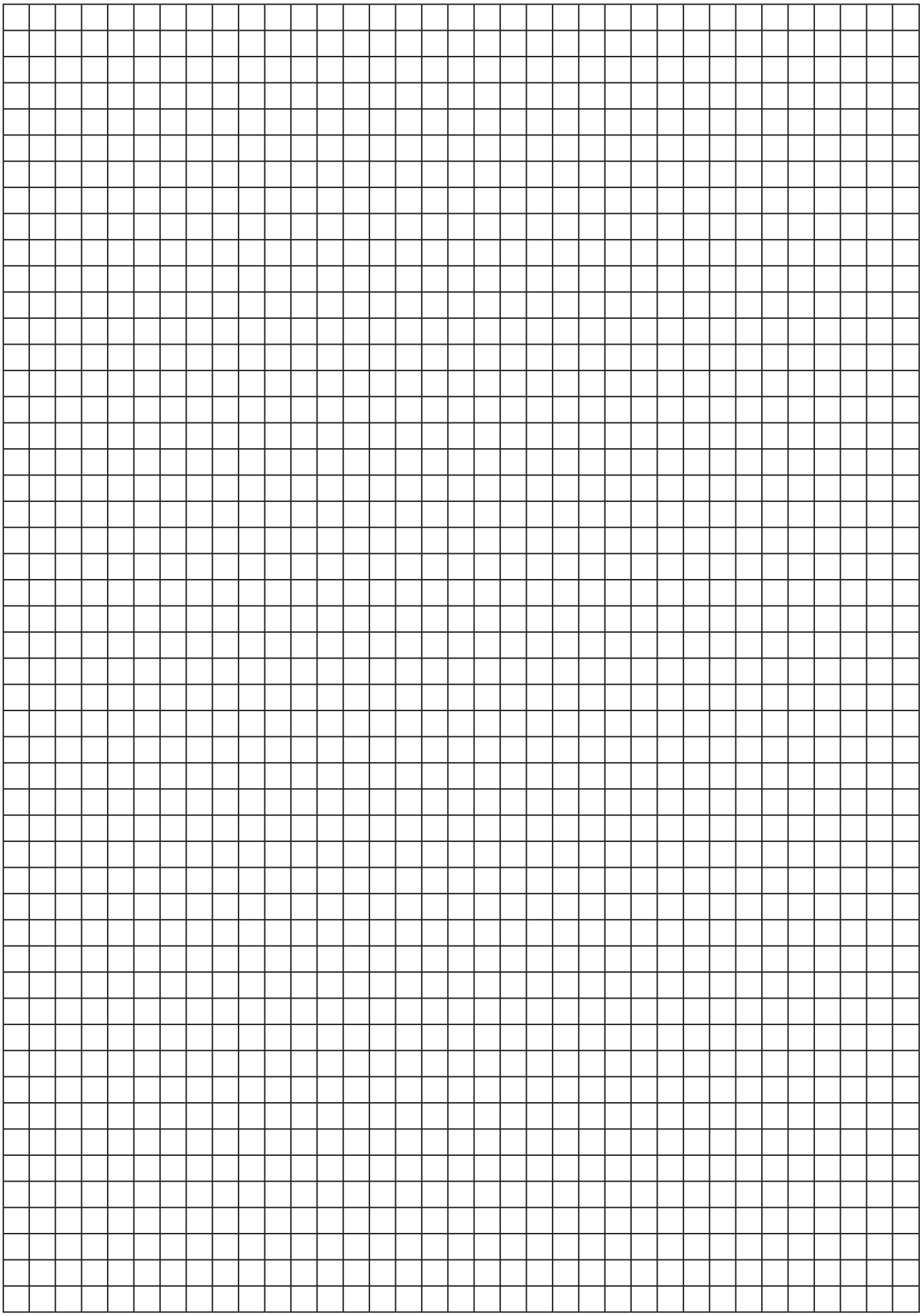
Scrap Graph Paper — This sheet will *not* be scored.



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

GEOMETRY

Wednesday, August 18, 2010 — 8:30 to 11:30 a.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 28 questions in this part.

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

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

The declaration below must 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.

Tear Here

Signature

GEOMETRY

GEOMETRY			
Question	**Maximum Credit**	**Credits Earned**	**Rater's/Scorer's Initials**
Part I 1–28	**56**		
Part II 29	**2**		
30	**2**		
31	**2**		
32	**2**		
33	**2**		
34	**2**		
Part III 35	**4**		
36	**4**		
37	**4**		
Part IV 38	**6**		
Maximum Total	**86**		

Total Raw Score

Checked by

Scale Score
(from conversion chart)

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

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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*.

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 scale score by using the conversion chart that will be posted on the Department's web site http://www.emsc.nysed.gov/osa/ on Wednesday, August 18, 2010. The student's scale score should be entered in the box provided on the student's detachable answer sheet. The scale score is the student's final examination score.

Part I

Allow a total of 56 credits, 2 credits for each of the following. Allow credit if the student has written the correct answer instead of the numeral 1, 2, 3, or 4.

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

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. 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 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. 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.

(29) **[2]** 70, and appropriate 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 $x = 35$, but $m\angle BAD$ is not found.

or

[1] 70, 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) **[2]** 375π, and appropriate 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, but the answer is not given in terms of π.

or

[1] 375π, 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]** 110, and appropriate 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, such as solving the equation $x + 40 = 4x - 5$.

or

[1] Appropriate work is shown to find $x = 15$, but no further correct work is shown.

or

[1] 110, 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]** A correct construction is drawn showing all appropriate arcs. (Point *C* does not have to be labeled.)

[1] All construction arcs are drawn, but the triangle is not drawn.

[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.

(33) **[2]** Both loci are sketched correctly, and the two points of intersection are labeled with an **X**.

[1] Both loci are sketched correctly, but the points of intersection are not labeled or are labeled incorrectly.

or

[1] Appropriate work is shown, but one conceptual error is made, but appropriate points of intersection are labeled.

or

[1] One locus is sketched correctly, but no further correct 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]** $(x+1)^2 + (y-2)^2 = 36$.

[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] $(-1, 2)$ and $r = 6$, but no further correct work is shown.

[0] $(-1, 2)$ or $r = 6$, 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.

Part III

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.

(35) **[4]** Parallel, and appropriate work is shown, and an appropriate explanation is given.

[3] Appropriate work is shown, but one computational error is made, but an appropriate explanation is given.

or

[3] Parallel, and appropriate work is shown, but the explanation is missing or is incorrect.

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

or

[2] Appropriate work is shown, but one conceptual error is made, but an appropriate explanation is given.

or

[2] Appropriate work is shown to find $m\angle BDC = 44$, but no further correct work is shown.

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

or

[1] Appropriate work is shown to find $x = 25$, but no further correct 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.

(36) **[4]** $A''(8,2)$, $B''(2,0)$, and $C''(6,-8)$, $\triangle A''B''C''$ is graphed and labeled correctly, and appropriate work is shown.

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

or

[3] Appropriate work is shown, but the coordinates are not stated or are stated incorrectly.

or

[3] Appropriate work is shown to find $A''(8,2)$, $B''(2,0)$, and $C''(6,-8)$, but $\triangle A''B''C''$ is not graphed.

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

or

[2] Appropriate work is shown, but one conceptual error is made, such as dilating before translating.

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

or

[1] One correct transformation is graphed and appropriate coordinates are stated.

or

[1] $A''(8,2)$, $B''(2,0)$, and $C''(6,-8)$, 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]** 2.4 or an equivalent answer, and appropriate work is shown, such as using proportions or area of a triangle.

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

[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.

or

[2] Appropriate work is shown to find 3.2 or 1.8, 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] 2.4, 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.

Part IV

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

(38) **[6]** Appropriate work is shown to prove *ABCD* is a parallelogram but is not a rhombus and is not a rectangle, and appropriate concluding statements are written.

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

or

[5] Appropriate work is shown to prove *ABCD* is a parallelogram and is not a rhombus and is not a rectangle, but the concluding statements are missing, incomplete, or incorrect.

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

or

[4] Appropriate work is shown, but one conceptual error is made, such as using an incorrect formula.

or

[4] Appropriate work is shown to prove *ABCD* is a parallelogram and either not a rhombus or not a rectangle, but concluding statements are written.

or

[4] Appropriate work is shown to prove *ABCD* is not a rhombus and not a rectangle, but does not prove it is a parallelogram, but concluding statements are written.

[3] Appropriate work is shown, but two or more computational or graphing errors are made, and the concluding statement is incomplete.

or

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

or

[3] Appropriate work is shown to prove *ABCD* is a parallelogram, and a concluding statement is written.

[2] Appropriate work is shown to find the lengths of all four sides, but no further correct work is shown.

[1] Appropriate work is shown to find all four slopes, but no further correct 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	2, 8, 20, 30
Constructions	5, 32
Locus	28, 33
Informal and Formal Proofs	1, 3, 6, 7, 11, 12, 16, 17, 18, 22, 25, 26, 27, 29, 31, 35, 37
Transformational Geometry	15, 21, 23, 36
Coordinate Geometry	4, 9, 10, 13, 14, 19, 24, 34, 38

Regents Examination in Geometry

August 2010

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

The *Chart for Determining the Final Examination Score for the August 2010 Regents Examination in Geometry* will be posted on the Department's web site http://www.emsc.nysed.gov/osa/ on Wednesday, August 18, 2010. Conversion charts provided for previous administrations of the Geometry examination 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.emsc.nysed.gov/osa/teacher/evaluation.html
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.

University of the State of New York
State Education Department

Regents Examination in Geometry
August 2010

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

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 to ensure the accuracy of the score. 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 Geometry.