

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

GEOMETRY

Thursday, January 27, 2011 — 9:15 a.m. to 12:15 p.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.

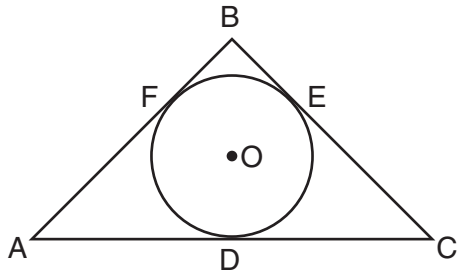
DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN.

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, \overline{AB} , \overline{BC} , and \overline{AC} are tangents to circle O at points F , E , and D , respectively, $AF = 6$, $CD = 5$, and $BE = 4$.

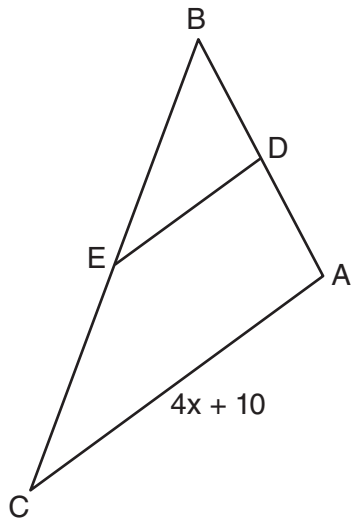


What is the perimeter of $\triangle ABC$?

- | | |
|--------|--------|
| (1) 15 | (3) 30 |
| (2) 25 | (4) 60 |
- 2 Quadrilateral $MNOP$ is a trapezoid with $\overline{MN} \parallel \overline{OP}$. If $M'N'O'P'$ is the image of $MNOP$ after a reflection over the x -axis, which two sides of quadrilateral $M'N'O'P'$ are parallel?
- | | |
|---|---|
| (1) $\overline{M'N'}$ and $\overline{O'P'}$ | (3) $\overline{P'M'}$ and $\overline{O'P'}$ |
| (2) $\overline{M'N'}$ and $\overline{N'O'}$ | (4) $\overline{P'M'}$ and $\overline{N'O'}$ |

Use this space for
computations.

- 3 In the diagram below of $\triangle ABC$, D is the midpoint of \overline{AB} , and E is the midpoint of \overline{BC} .

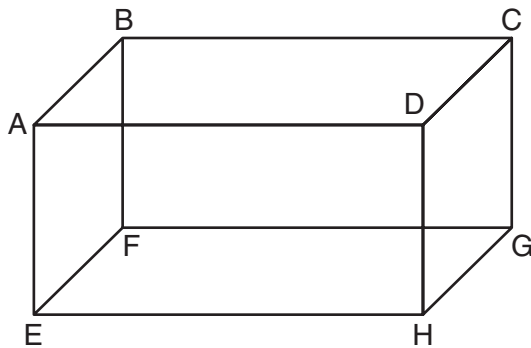


If $AC = 4x + 10$, which expression represents DE ?

- (1) $x + 2.5$ (3) $2x + 10$
(2) $2x + 5$ (4) $8x + 20$
- 4 Which statement is true about every parallelogram?
- (1) All four sides are congruent.
(2) The interior angles are all congruent.
(3) Two pairs of opposite sides are congruent.
(4) The diagonals are perpendicular to each other.

5 The diagram below shows a rectangular prism.

Use this space for
computations.



Which pair of edges are segments of lines that are coplanar?

- | | |
|---|---|
| (1) \overline{AB} and \overline{DH} | (3) \overline{BC} and \overline{EH} |
| (2) \overline{AE} and \overline{DC} | (4) \overline{CG} and \overline{EF} |

6 A line segment has endpoints $A(7,-1)$ and $B(-3,3)$. What are the coordinates of the midpoint of \overline{AB} ?

- | | |
|-----------|------------|
| (1) (1,2) | (3) (-5,2) |
| (2) (2,1) | (4) (5,-2) |

**Use this space for
computations.**

7 What is the image of the point $(-5,2)$ under the translation $T_{3,-4}$?

- (1) $(-9,5)$
- (2) $(-8,6)$
- (3) $(-2,-2)$
- (4) $(-15,-8)$

8 When writing a geometric proof, which angle relationship could be used alone to justify that two angles are congruent?

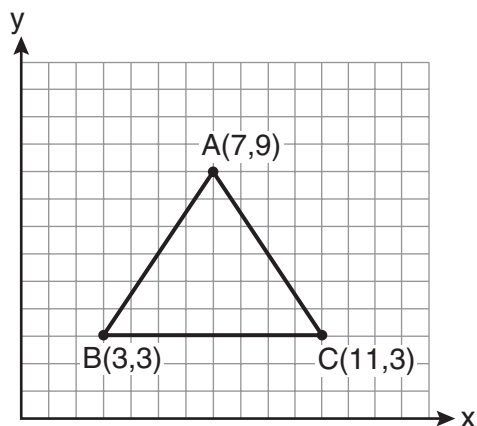
- (1) supplementary angles
- (2) linear pair of angles
- (3) adjacent angles
- (4) vertical angles

9 Plane \mathcal{R} is perpendicular to line k and plane \mathcal{D} is perpendicular to line k . Which statement is correct?

- (1) Plane \mathcal{R} is perpendicular to plane \mathcal{D} .
- (2) Plane \mathcal{R} is parallel to plane \mathcal{D} .
- (3) Plane \mathcal{R} intersects plane \mathcal{D} .
- (4) Plane \mathcal{R} bisects plane \mathcal{D} .

Use this space for computations.

- 10** The vertices of the triangle in the diagram below are $A(7,9)$, $B(3,3)$, and $C(11,3)$.

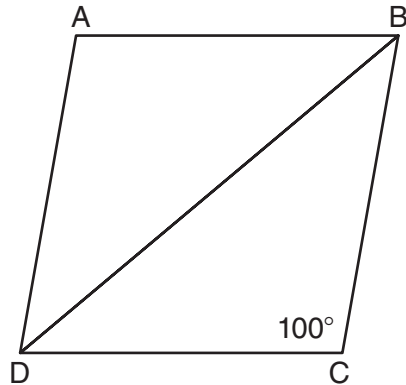


What are the coordinates of the centroid of $\triangle ABC$?

- | | |
|-----------|-----------|
| (1) (5,6) | (3) (7,5) |
| (2) (7,3) | (4) (9,6) |
- 11** Which set of numbers does *not* represent the sides of a right triangle?
- | | |
|-----------------|------------------|
| (1) {6, 8, 10} | (3) {8, 24, 25} |
| (2) {8, 15, 17} | (4) {15, 36, 39} |

Use this space for
computations.

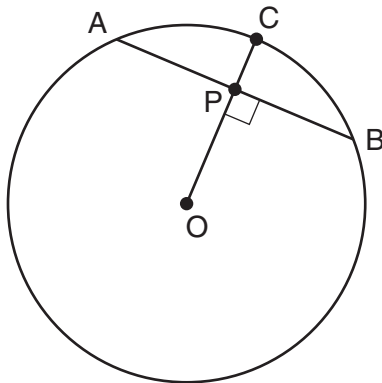
12 In the diagram below of rhombus $ABCD$, $m\angle C = 100$.



What is $m\angle DBC$?

- (1) 40
- (2) 45
- (3) 50
- (4) 80

13 In the diagram below of circle O , radius \overline{OC} is 5 cm. Chord \overline{AB} is 8 cm and is perpendicular to \overline{OC} at point P .



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

- (1) 8
- (2) 2
- (3) 3
- (4) 4

**Use this space for
computations.**

14 What is an equation of the line that passes through the point $(-2,3)$ and is parallel to the line whose equation is $y = \frac{3}{2}x - 4$?

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

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

(2) $y = \frac{-2}{3}x + \frac{5}{3}$

(4) $y = \frac{3}{2}x + 6$

15 In scalene triangle ABC , $m\angle B = 45$ and $m\angle C = 55$. What is the order of the sides in length, from longest to shortest?

(1) $\overline{AB}, \overline{BC}, \overline{AC}$

(3) $\overline{AC}, \overline{BC}, \overline{AB}$

(2) $\overline{BC}, \overline{AC}, \overline{AB}$

(4) $\overline{BC}, \overline{AB}, \overline{AC}$

16 What is an equation of a circle with center $(7, -3)$ and radius 4?

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

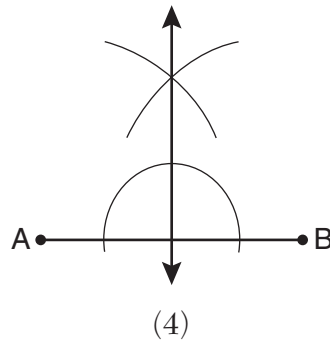
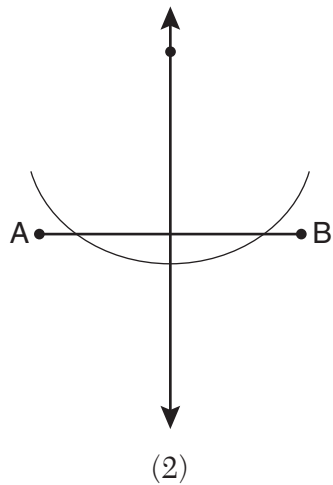
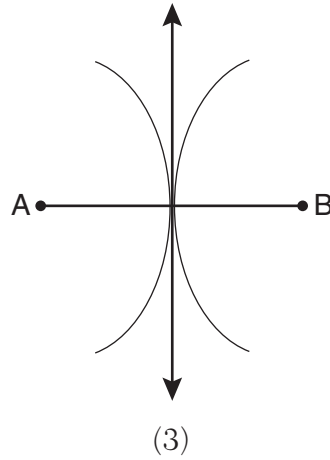
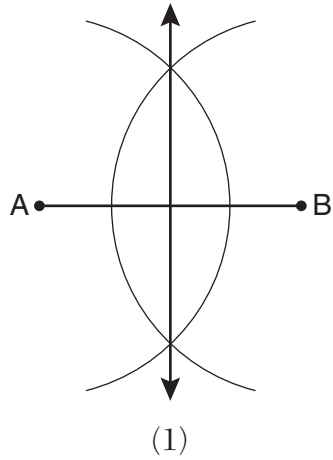
(2) $(x + 7)^2 + (y - 3)^2 = 4$

(3) $(x - 7)^2 + (y + 3)^2 = 16$

(4) $(x + 7)^2 + (y - 3)^2 = 16$

Use this space for
computations.

20 Which diagram shows the construction of the perpendicular bisector of \overline{AB} ?



21 In circle O , a diameter has endpoints $(-5,4)$ and $(3,-6)$. What is the length of the diameter?

(1) $\sqrt{2}$

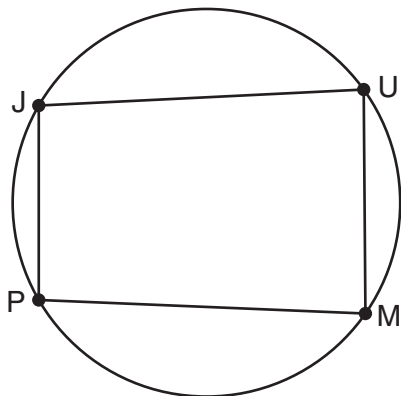
(3) $\sqrt{10}$

(2) $2\sqrt{2}$

(4) $2\sqrt{41}$

**Use this space for
computations.**

24 In the diagram below, quadrilateral $JUMP$ is inscribed in a circle.

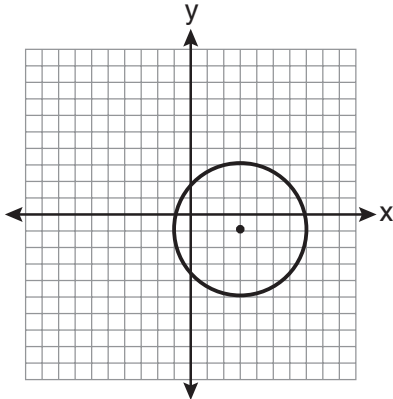


Opposite angles J and M must be

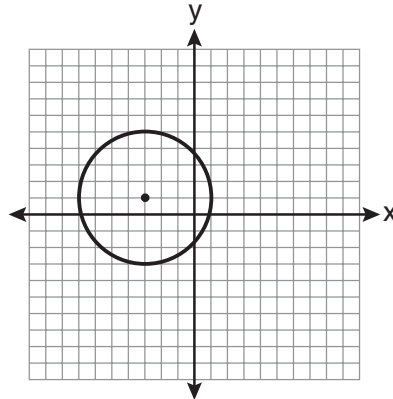
- | | |
|-------------------|-------------------|
| (1) right | (3) congruent |
| (2) complementary | (4) supplementary |

Use this space for
computations.

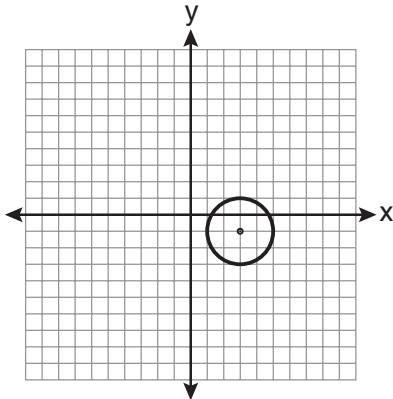
- 25 Which graph represents a circle with the equation $(x - 3)^2 + (y + 1)^2 = 4$?



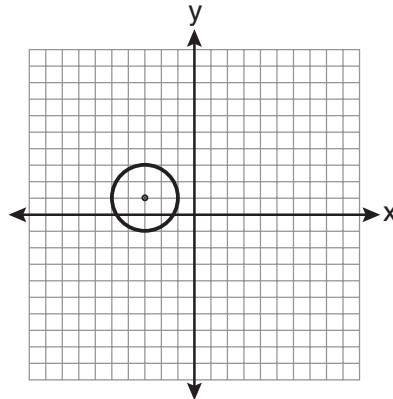
(1)



(3)



(2)



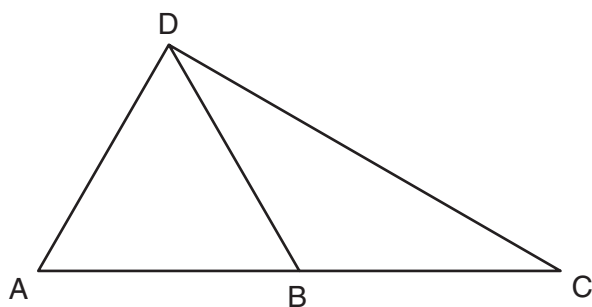
(4)

- 26 The point $(3, -2)$ is rotated 90° about the origin and then dilated by a scale factor of 4. What are the coordinates of the resulting image?
- (1) $(-12, 8)$ (3) $(8, 12)$
(2) $(12, -8)$ (4) $(-8, -12)$

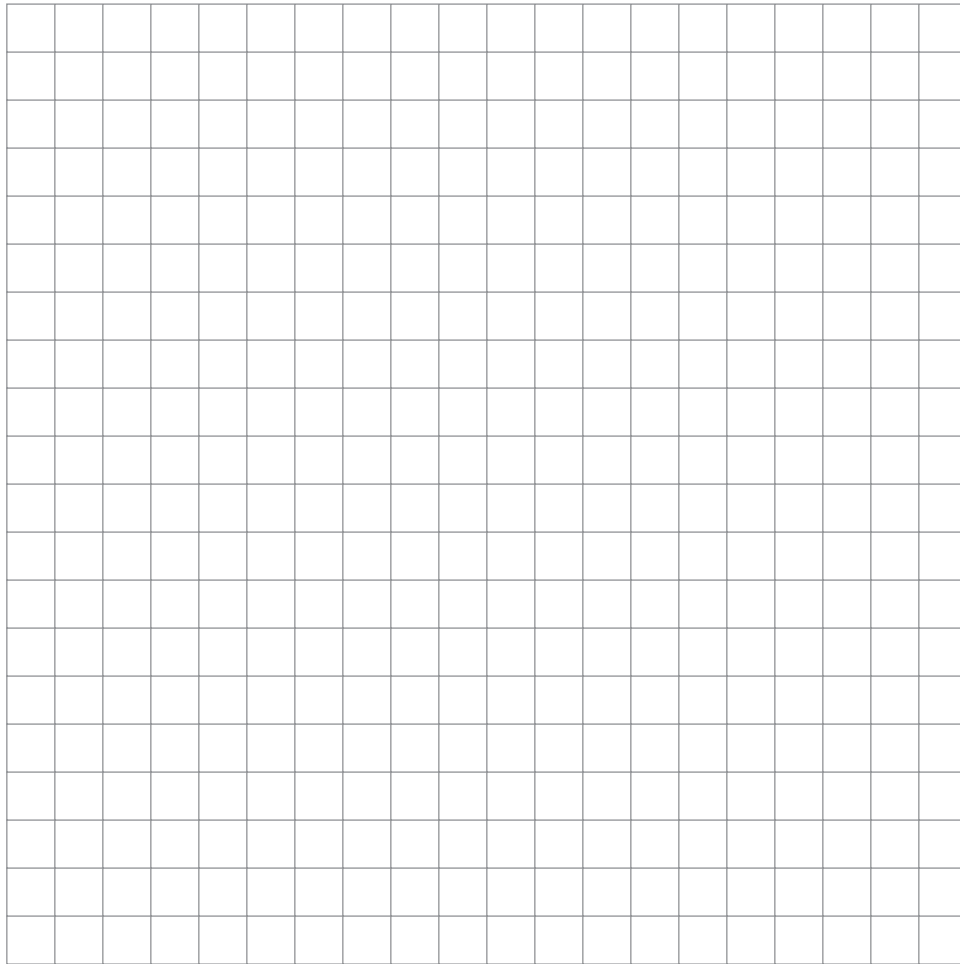
Part II

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 In the diagram below of $\triangle ACD$, B is a point on \overline{AC} such that $\triangle ADB$ is an equilateral triangle, and $\triangle DBC$ is an isosceles triangle with $\overline{DB} \cong \overline{BC}$. Find $m\angle C$.

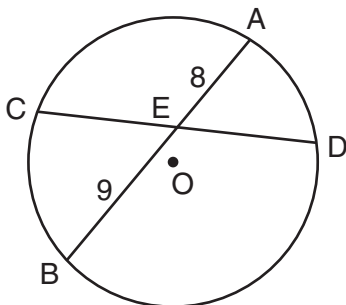


30 Triangle ABC has vertices $A(-2,2)$, $B(-1,-3)$, and $C(4,0)$. Find the coordinates of the vertices of $\triangle A'B'C'$, the image of $\triangle ABC$ after the transformation $r_{x\text{-axis}}$.
[The use of the grid below is optional.]

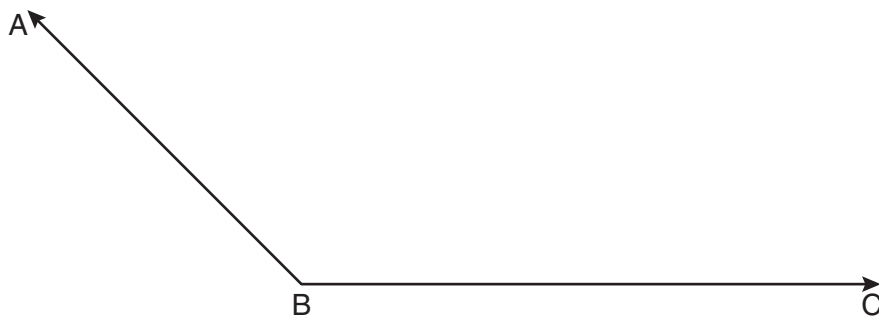


31 Find, in degrees, the measures of both an interior angle and an exterior angle of a regular pentagon.

- 32** In the diagram below of circle O , chord \overline{AB} bisects chord \overline{CD} at E . If $AE = 8$ and $BE = 9$, find the length of \overline{CE} in simplest radical form.



33 On the diagram below, use a compass and straightedge to construct the bisector of $\angle ABC$.
[Leave all construction marks.]

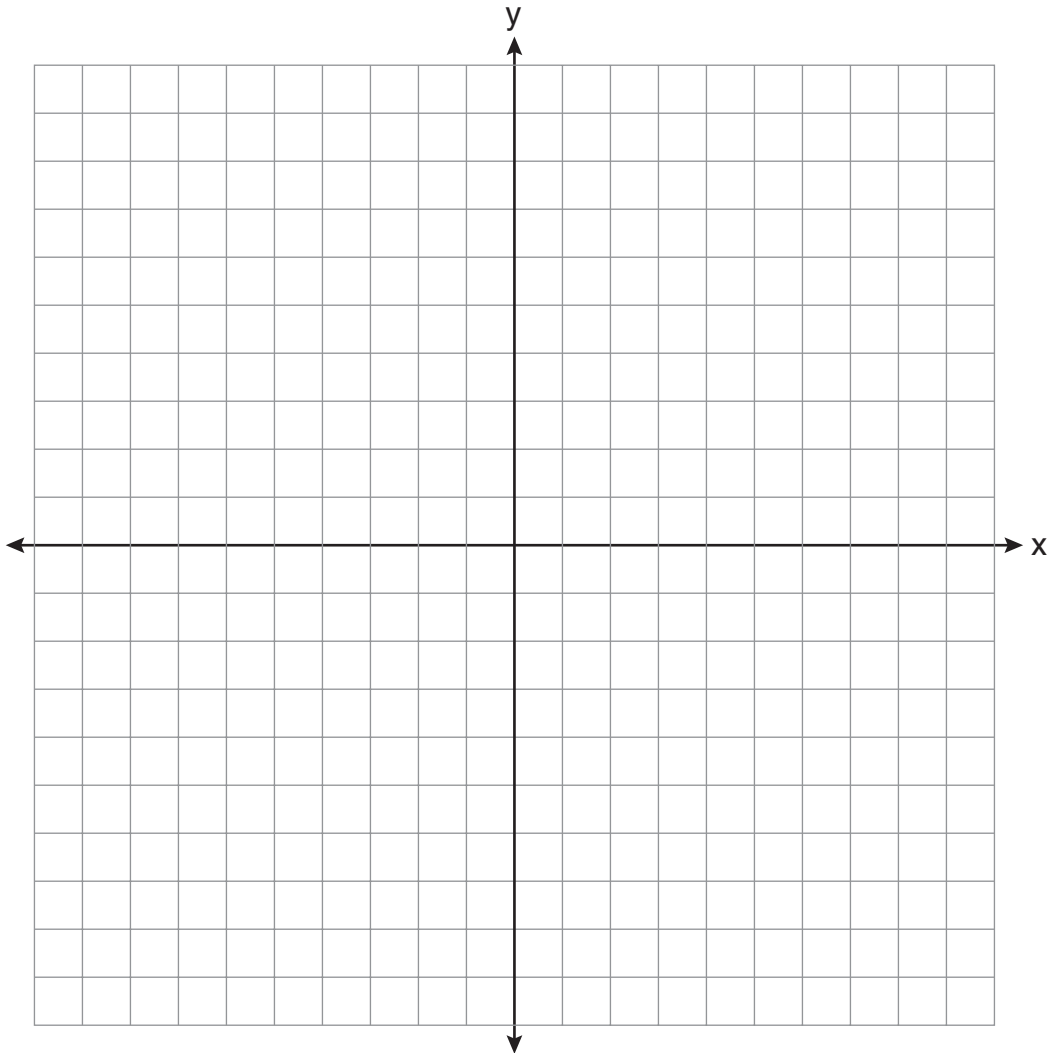


34 Find the slope of a line perpendicular to the line whose equation is $2y - 6x = 4$.

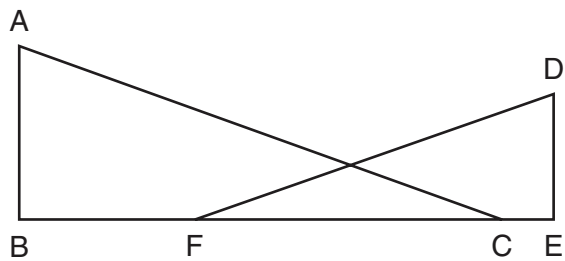
Part III

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]

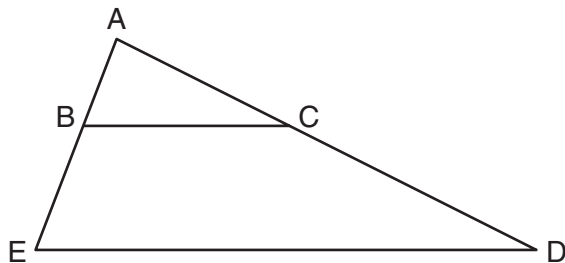
- 35 On the set of axes below, graph the locus of points that are four units from the point $(2,1)$. On the same set of axes, graph the locus of points that are two units from the line $x = 4$. State the coordinates of all points that satisfy both conditions.



- 36 In the diagram below, \overline{BFCE} , $\overline{AB} \perp \overline{BE}$, $\overline{DE} \perp \overline{BE}$, and $\angle BFD \cong \angle ECA$.
Prove that $\triangle ABC \sim \triangle DEF$.



- 37 In the diagram below of $\triangle ADE$, B is a point on \overline{AE} and C is a point on \overline{AD} such that $\overline{BC} \parallel \overline{ED}$, $AC = x - 3$, $BE = 20$, $AB = 16$, and $AD = 2x + 2$. Find the length of \overline{AC} .

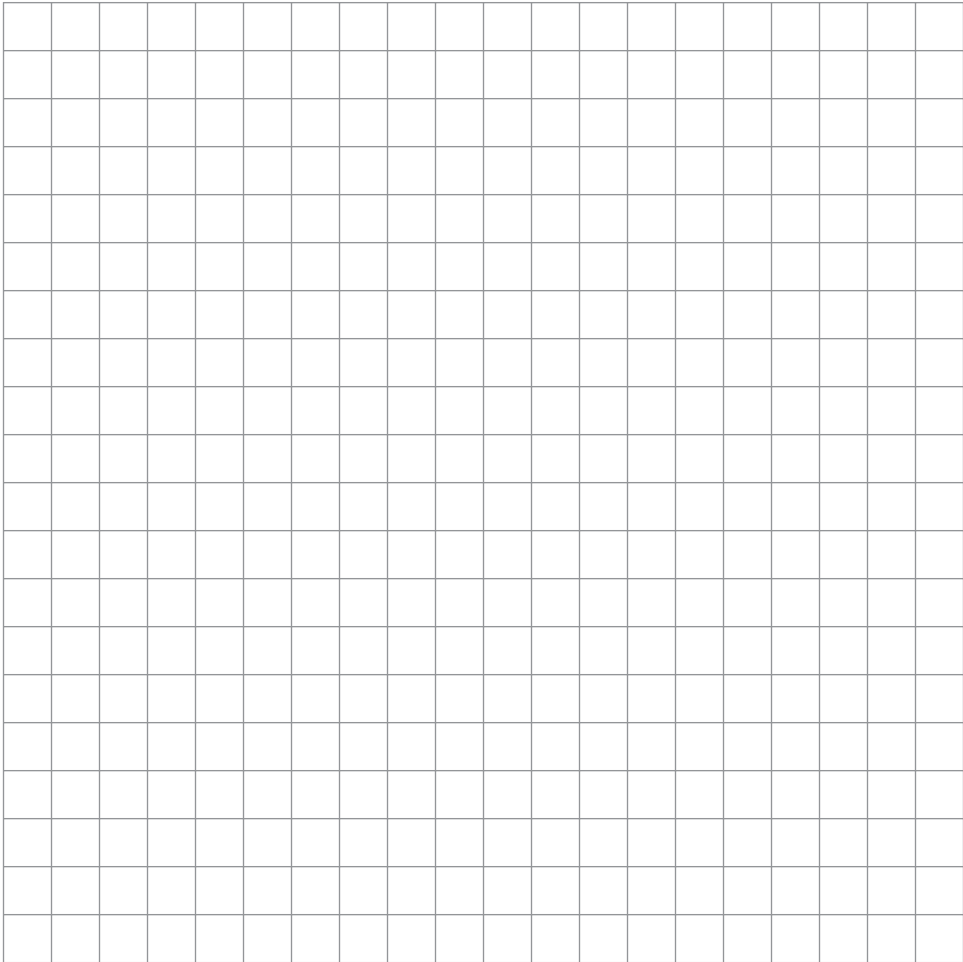


Part IV

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 Quadrilateral $MATH$ has coordinates $M(1,1)$, $A(-2,5)$, $T(3,5)$, and $H(6,1)$. Prove that quadrilateral $MATH$ is a rhombus and prove that it is *not* a square.
[The use of the grid on the next page is optional.]

Question 38 continued



Reference Sheet

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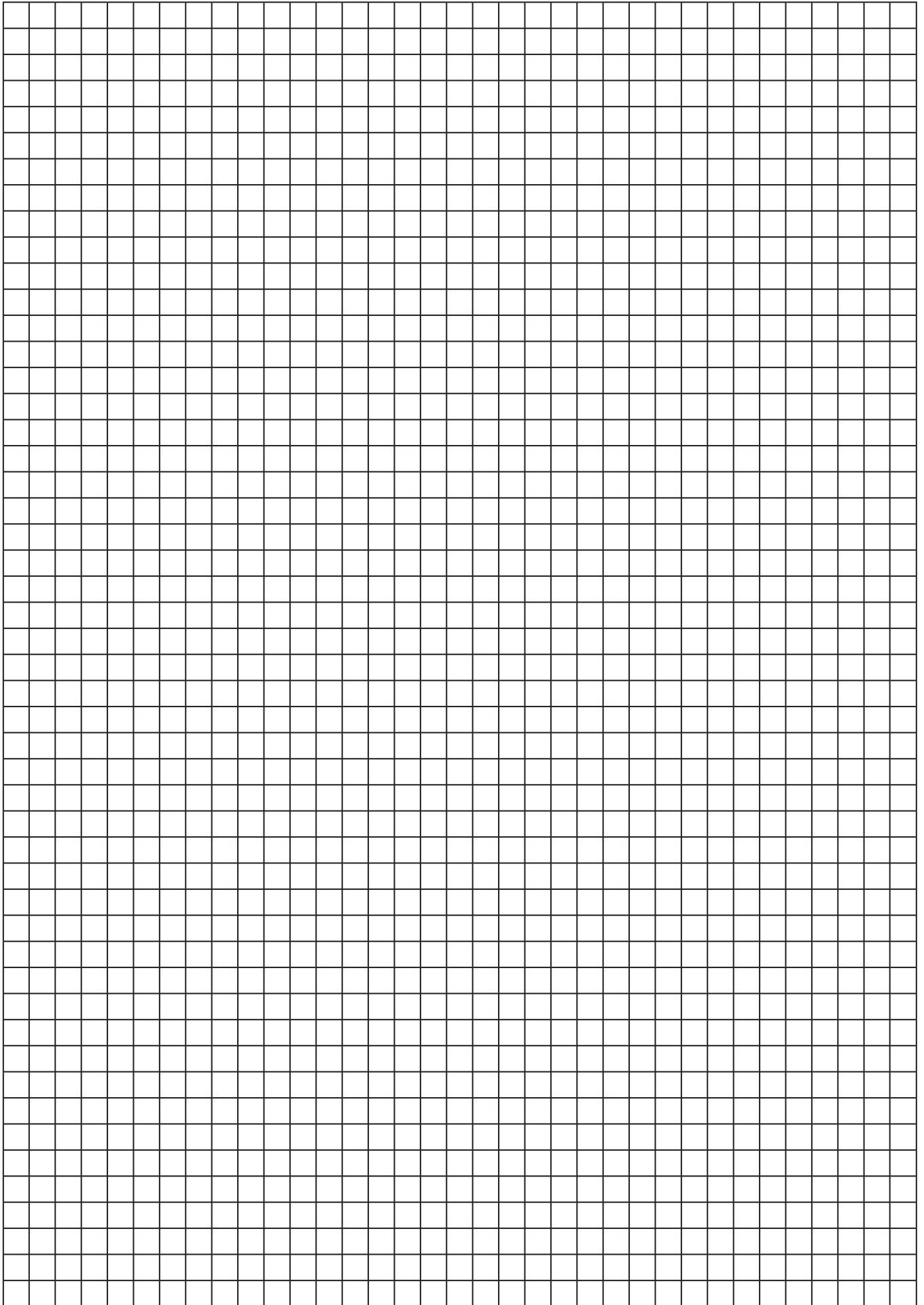
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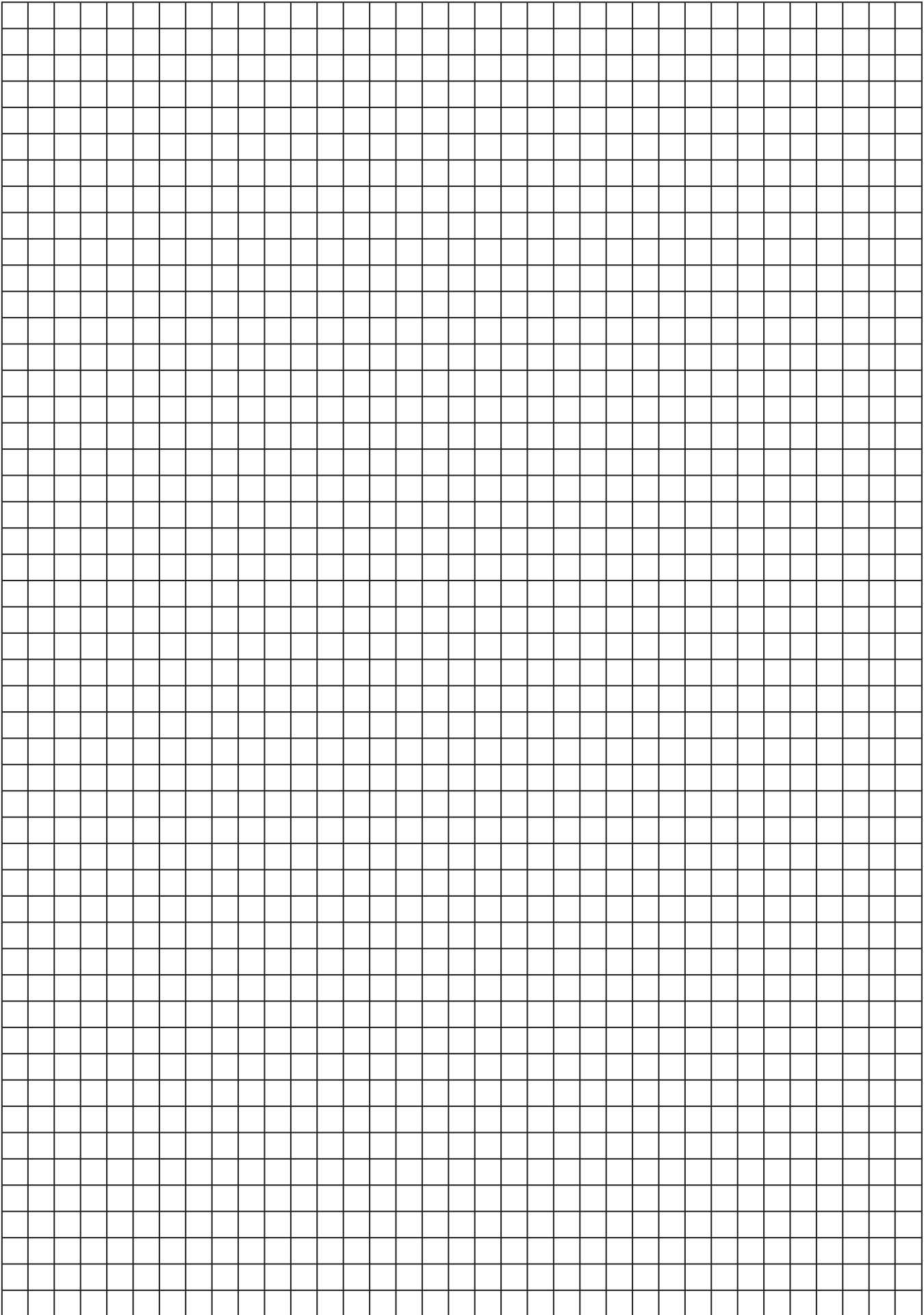
Scrap Graph Paper — This sheet will *not* be scored.

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



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

GEOMETRY

Thursday, January 27, 2011 — 9:15 a.m. to 12:15 p.m., only

ANSWER SHEET

Student Sex: Male Female Grade

Teacher School

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

Part I

Answer all 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.

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		

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

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Total Raw Score

Checked by

Scale Score
(from conversion chart)

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FOR TEACHERS ONLY

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

GEOMETRY

Thursday, January 27, 2011 – 9:15 a.m. to 12:15 p.m., only

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.p12.nysed.gov/osa/> on Thursday, January 27, 2011. 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) 3	(8) 4	(15) 4	(22) 1
(2) 1	(9) 2	(16) 3	(23) 4
(3) 2	(10) 3	(17) 2	(24) 4
(4) 3	(11) 3	(18) 4	(25) 2
(5) 3	(12) 1	(19) 4	(26) 3
(6) 2	(13) 3	(20) 1	(27) 3
(7) 3	(14) 4	(21) 4	(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.p12.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] 30, and appropriate work is shown, such as correctly labeling angle measures on the 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] 30, 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] $A'(-2, -2)$, $B'(-1, 3)$, and $C'(4, 0)$.
- [1] One graphing error is made.
- or*
- [1] One conceptual error is made, such as reflecting the triangle over the y-axis.
- or*
- [1] Only the coordinates of two points are stated and labeled correctly.
- or*
- [1] A' , B' , and C' are graphed and labeled correctly, but the coordinates are not stated or are stated incorrectly.
- or*
- [1] $(-2, -2)$, $(-1, 3)$, and $(4, 0)$, but the coordinates are not labeled or are labeled incorrectly.
- [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] An interior angle of 108 and an exterior angle of 72, 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 108 and 72, but the angles are not labeled or are labeled incorrectly.

or

[1] Appropriate work is shown to find either an interior angle of 108 or an exterior angle of 72.

or

[1] An interior angle of 108 and an exterior angle of 72, 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] $6\sqrt{2}$, and appropriate work is shown.

[1] Appropriate work is shown, but one computational or simplification 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 written in simplest radical form.

or

[1] Appropriate work is shown, but the answer is written as a decimal.

or

[1] $6\sqrt{2}$, 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.

(33) [2] A correct construction is drawn showing all appropriate arcs, and the angle bisector is drawn.

[1] All appropriate arcs are drawn, but the angle bisector is not drawn.

or

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

[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.

(34) [2] $-\frac{1}{3}$, 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] $-\frac{1}{3}$, but no work is shown.

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

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] Both loci are graphed correctly and $(2,5)$, $(2,-3)$, and $(6,1)$ are stated.
- [3] Appropriate work is shown, but one graphing error is made, but appropriate coordinates are stated.
- or*
- [3] Appropriate work is shown, but the coordinates of only one or two of the points are stated correctly.
- or*
- [3] Appropriate work is shown and the correct points are indicated, but the coordinates are not stated or are stated incorrectly.
- [2] Both loci are graphed correctly, but no further correct work is shown.
- or*
- [2] Appropriate work is shown, but one graphing error is made, but appropriate points are indicated, but the coordinates are not stated or are stated incorrectly.
- or*
- [2] Appropriate work is shown, but one conceptual error is made, but appropriate coordinates are stated.
- [1] Only one locus is graphed correctly, but no further correct work is shown.
- or*
- [1] $(2,5)$, $(2,-3)$, and $(6,1)$, 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.

- (36) [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 or reason is missing or is incorrect or no concluding statement is written.
- [2] $\angle DFE \cong \angle ACB$ is proven, but no further correct work is shown.
- or*
- [2] A proof is written that demonstrates a good understanding of the method of proof and contains no conceptual errors, but two statements 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] $\angle ABC \cong \angle DEF$ is proven, but no further correct work is shown.
- or*
- [1] Some correct relevant statements about the proof are made, but three or four statements or reasons are missing or are incorrect.
- [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.

(37) [4] 32, and appropriate work is shown.

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

or

[3] A correct proportion is written and $x = 35$ is found, but no further correct work is shown.

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

or

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

or

[2] A correct proportion is written, but no further correct work is shown.

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

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.

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] A complete and correct proof that includes concluding statements that $MATH$ is a rhombus and $MATH$ is not a square is written.

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

or

[5] Appropriate work is shown to prove $MATH$ is a rhombus, and work is shown to prove $MATH$ is not a square, but a concluding statement is missing or is 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.

or

[4] Appropriate work is shown to prove $MATH$ is a rhombus, but no further correct work is shown.

or

[4] Appropriate work is shown to prove $MATH$ is a parallelogram and not a square, but no work is shown to prove it is a rhombus.

[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 $MATH$ is a parallelogram, but no further correct work is shown.

[2] Appropriate work is shown, but two conceptual errors are made.

or

[2] Appropriate work is shown to find all four correct slopes or all four correct sides, but no further correct work is shown.

or

[2] Appropriate work is shown to prove the diagonals are perpendicular bisectors of each other, but no further correct work is shown.

or

[2] Appropriate work is shown to prove $MATH$ is not a square, but no further correct work is shown.

[1] The correct slopes of all four sides are stated or the correct lengths of all four sides are stated, but no work is shown and no proof is written.

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

Map to Core Curriculum

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

Regents Examination in Geometry

January 2011

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

The Chart for Determining the Final Examination Score for the January 2011 Regents Examination in Geometry will be posted on the Department's web site <http://www.p12.nysed.gov/osa/> on Thursday, January 27, 2011. 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.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 January 2011

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

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.