

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

GEOMETRY

Thursday, August 13, 2015 — 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.

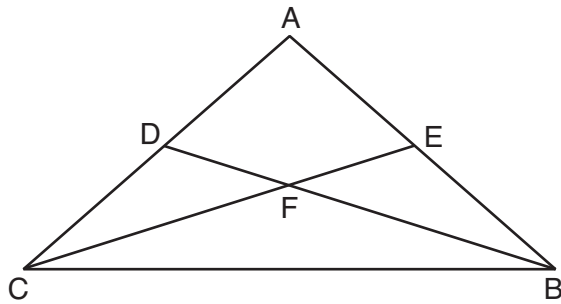
DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN.

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** In $\triangle ABC$ shown below with \overline{ADC} , \overline{AEB} , \overline{CFE} , and \overline{BFD} , $\triangle ACE \cong \triangle ABD$.

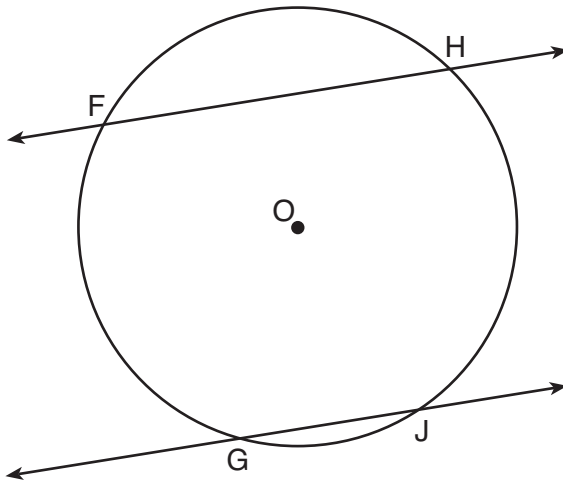


Which statement must be true?

- (1) $\angle ACF \cong \angle BCF$ (3) $\angle BCD \cong \angle ABD$
(2) $\angle DAE \cong \angle DFE$ (4) $\angle AEF \cong \angle ADF$
- 2** In a circle whose equation is $(x - 1)^2 + (y + 3)^2 = 9$, the coordinates of the center and length of its radius are
- (1) $(1, -3)$ and $r = 81$ (3) $(1, -3)$ and $r = 3$
(2) $(-1, 3)$ and $r = 81$ (4) $(-1, 3)$ and $r = 3$

Use this space for
computations.

- 3 Parallel secants \overleftrightarrow{FH} and \overleftrightarrow{GJ} intersect circle O , as shown in the diagram below.



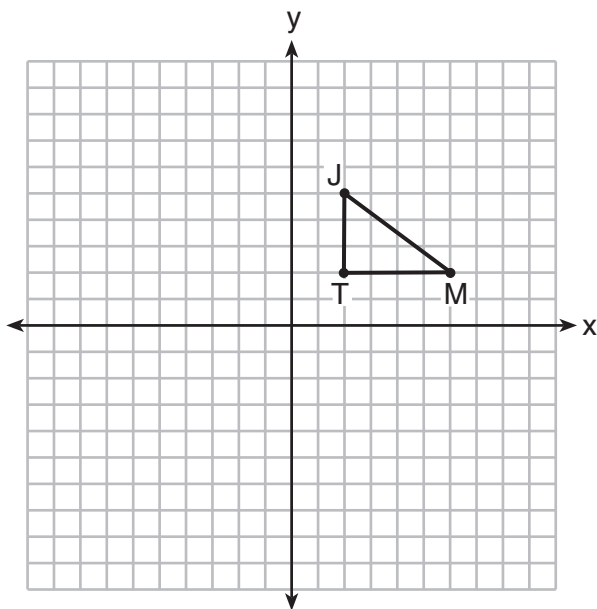
If $m\widehat{FH} = 106$ and $m\widehat{GJ} = 24$, then $m\widehat{FG}$ equals

- | | |
|---------|---------|
| (1) 106 | (3) 130 |
| (2) 115 | (4) 156 |
- 4 What are the coordinates of P' , the image of point $P(x,y)$ after translation $T_{4,4}$?
- | | |
|----------------------|----------------|
| (1) $(x - 4, y - 4)$ | (3) $(4x, 4y)$ |
| (2) $(x + 4, y + 4)$ | (4) $(4, 4)$ |
- 5 The statement “ $x > 5$ or $x < 3$ ” is *false* when x is equal to

- | | |
|-------|-------|
| (1) 1 | (3) 7 |
| (2) 2 | (4) 4 |

6 Triangle JTM is shown on the graph below.

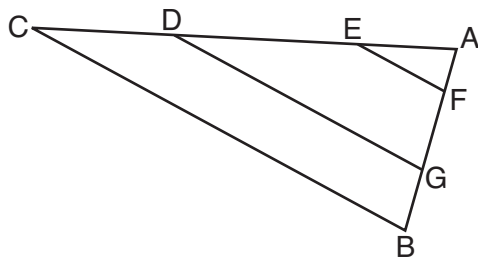
Use this space for
computations.



Which transformation would result in an image that is *not* congruent to $\triangle JTM$?

- (1) $r_{y=x}$ (3) $T_{0,-3}$
(2) R_{90° (4) D_2

7 In the diagram below of $\triangle ABC$, with \overline{CDEA} and \overline{BGFA} ,
 $\overline{EF} \parallel \overline{DG} \parallel \overline{CB}$.

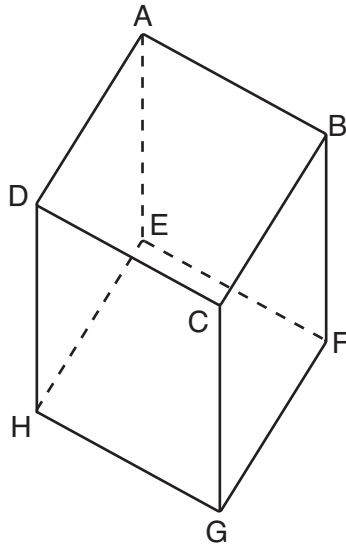


Which statement is *false*?

- (1) $\frac{AC}{AD} = \frac{AB}{AG}$ (3) $\frac{AE}{AD} = \frac{EC}{AC}$
(2) $\frac{AE}{AF} = \frac{AC}{AB}$ (4) $\frac{BG}{BA} = \frac{CD}{CA}$

Use this space for
computations.

8 Which pair of edges is *not* coplanar in the cube shown below?



- (1) \overline{EH} and \overline{CD} (3) \overline{DH} and \overline{AE}
(2) \overline{AD} and \overline{FG} (4) \overline{AB} and \overline{EF}

9 What is an equation of the line that passes through the point $(-2,1)$ and is parallel to the line whose equation is $4x - 2y = 8$?

- (1) $y = \frac{1}{2}x + 2$ (3) $y = 2x + 5$
(2) $y = \frac{1}{2}x - 2$ (4) $y = 2x - 5$

10 In $\triangle JKL$, $\overline{JL} \cong \overline{KL}$. If $m\angle J = 58$, then $m\angle L$ is

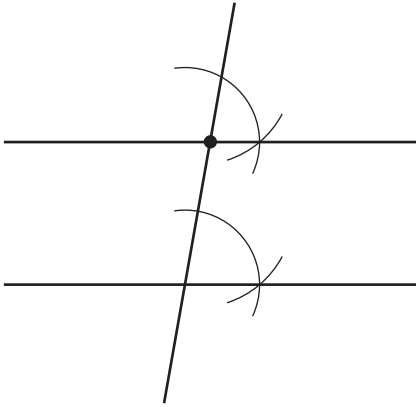
- (1) 61 (3) 116
(2) 64 (4) 122

11 The corresponding medians of two similar triangles are 8 and 20. If the perimeter of the larger triangle is 45, what is the perimeter of the *smaller* triangle?

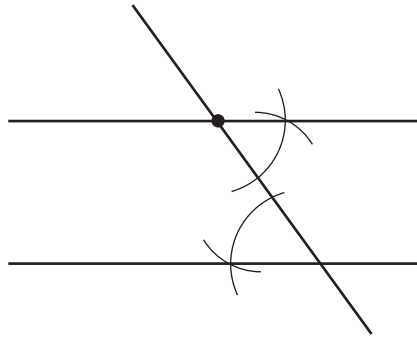
- (1) 14 (3) 33
(2) 18 (4) 37

Use this space for
computations.

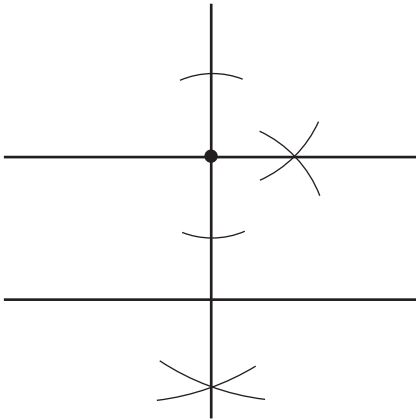
- 12 Which construction of parallel lines is justified by the theorem “If two lines are cut by a transversal to form congruent alternate interior angles, then the lines are parallel”?



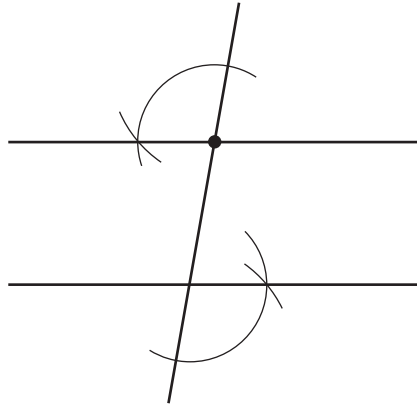
(1)



(3)



(2)



(4)

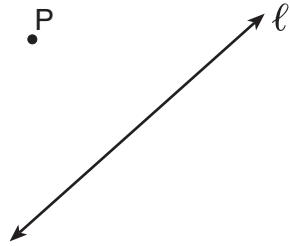
- 13 Given: “If a polygon is a triangle, then the sum of its interior angles is 180° .”

What is the contrapositive of this statement?

- (1) “If the sum of the interior angles of a polygon is not 180° , then it is not a triangle.”
- (2) “A polygon is a triangle if and only if the sum of its interior angles is 180° .”
- (3) “If a polygon is not a triangle, then the sum of the interior angles is not 180° .”
- (4) “If the sum of the interior angles of a polygon is 180° , then it is a triangle.”

Use this space for
computations.

14 In the diagram below, point P is not on line ℓ .



How many distinct planes that contain point P are also perpendicular to line ℓ ?

- (1) 1 (3) 0
(2) 2 (4) an infinite amount

15 The image of $\triangle ABC$ after the transformation $r_{y\text{-axis}}$ is $\triangle A'B'C'$. Which property is *not* preserved?

- (1) distance (3) collinearity
(2) orientation (4) angle measure

16 The equations $y = 2x + 3$ and $y = -x^2 - x + 1$ are graphed on the same set of axes. The coordinates of a point in the solution of this system of equations are

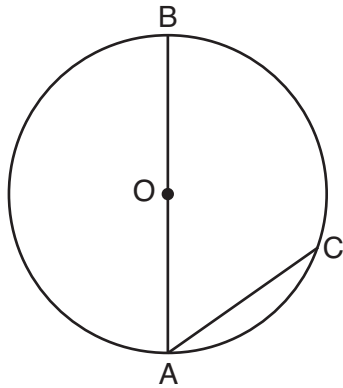
- (1) (0,1) (3) (-1,-2)
(2) (1,5) (4) (-2,-1)

17 Which quadrilateral has diagonals that are always perpendicular bisectors of each other?

- (1) square (3) trapezoid
(2) rectangle (4) parallelogram

Use this space for computations.

- 18** As shown in the diagram below, \overline{AB} is a diameter of circle O , and chord \overline{AC} is drawn.



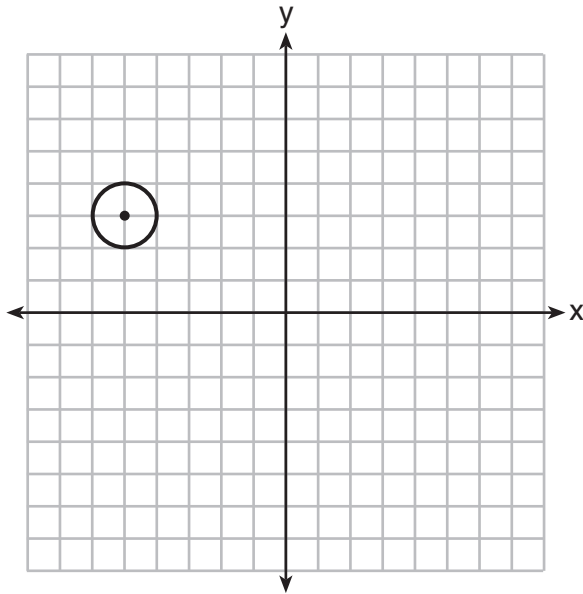
If $m\angle BAC = 70$, then $m\widehat{AC}$ is

- (1) 40 (3) 110
(2) 70 (4) 140
- 19** In parallelogram $JKLM$, $m\angle L$ exceeds $m\angle M$ by 30 degrees. What is the measure of $\angle J$?

- (1) 75° (3) 165°
(2) 105° (4) 195°

20 Which equation represents the circle shown in the graph below?

Use this space for
computations.



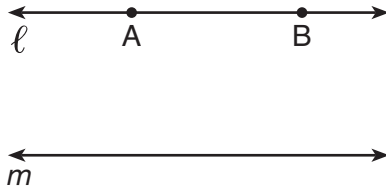
- (1) $(x - 5)^2 + (y + 3)^2 = 1$
- (2) $(x + 5)^2 + (y - 3)^2 = 1$
- (3) $(x - 5)^2 + (y + 3)^2 = 2$
- (4) $(x + 5)^2 + (y - 3)^2 = 2$

21 What is the measure of each interior angle in a regular octagon?

- (1) 108°
- (2) 135°
- (3) 144°
- (4) 1080°

Use this space for computations.

- 22 Points A and B are on line ℓ , and line ℓ is parallel to line m , as shown in the diagram below.



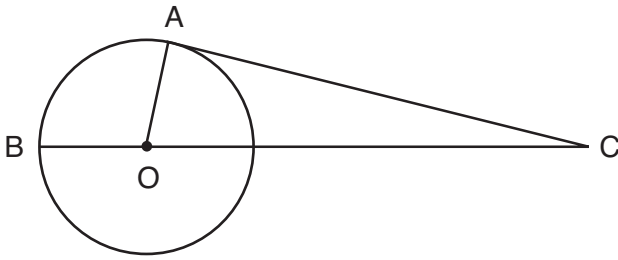
How many points are in the same plane as ℓ and m and equidistant from ℓ and m , and also equidistant from A and B ?

- (1) 1 (3) 3
(2) 2 (4) 0
- 23 A carpenter made a storage container in the shape of a rectangular prism. It is 5 feet high and has a volume of 720 cubic feet. He wants to make a second container with the same height and volume as the first one, but in the shape of a triangular prism. What will be the number of square feet in the area of the base of the new container?
- (1) 36 (3) 144
(2) 72 (4) 288
- 24 In $\triangle ABC$, $m\angle B < m\angle A < m\angle C$. Which statement is *false*?

- (1) $AC > BC$ (3) $AC < AB$
(2) $BC > AC$ (4) $BC < AB$

Use this space for computations.

- 25 In the diagram below of circle O with radius \overline{OA} , tangent \overline{CA} and secant \overline{COB} are drawn.

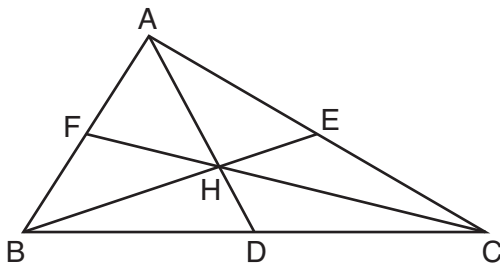


(Not drawn to scale)

If $AC = 20$ cm and $OA = 7$ cm, what is the length of \overline{OC} , to the nearest centimeter?

- (1) 19 (3) 21
 (2) 20 (4) 27

- 26 In the diagram below of $\triangle ABC$, point H is the intersection of the three medians.



If \overline{DH} measures 2.4 centimeters, what is the length, in centimeters, of \overline{AD} ?

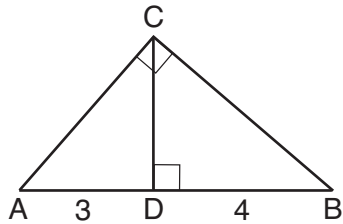
- (1) 3.6 (3) 7.2
 (2) 4.8 (4) 9.6

Use this space for computations.

27 Which set of numbers could be the lengths of the sides of an isosceles triangle?

- (1) $\{1, 1, 2\}$
- (2) $\{3, 3, 5\}$
- (3) $\{3, 4, 5\}$
- (4) $\{4, 4, 9\}$

28 In the diagram below of right triangle ABC , \overline{CD} is the altitude to hypotenuse \overline{AB} , $AD = 3$, and $DB = 4$.



What is the length of \overline{CB} ?

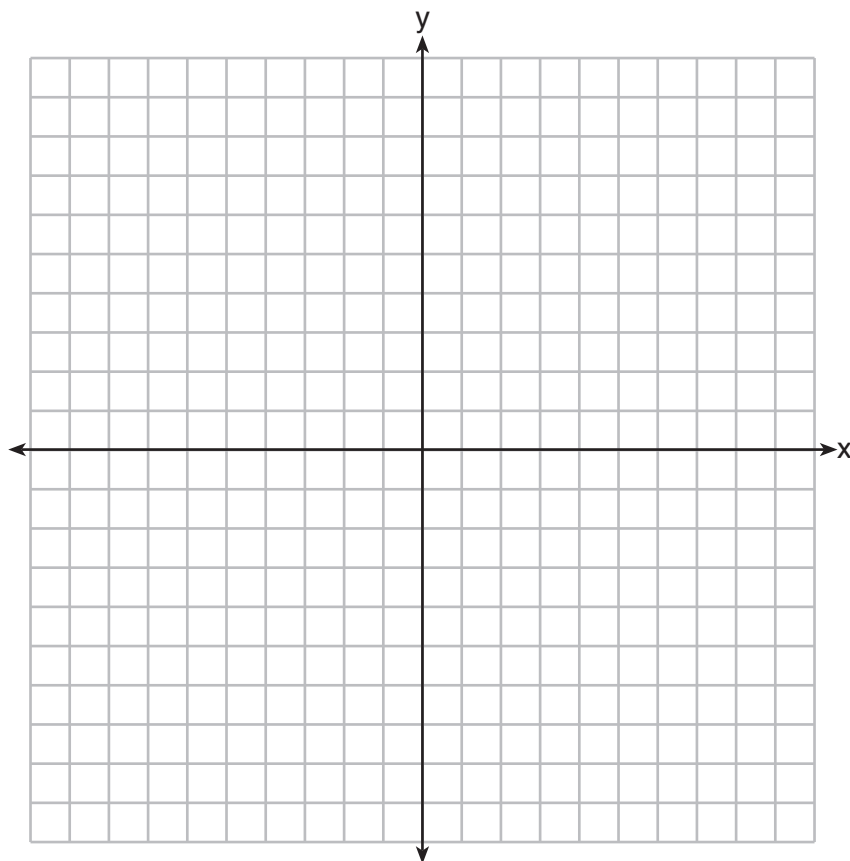
- (1) $2\sqrt{3}$
 - (2) $\sqrt{21}$
 - (3) $2\sqrt{7}$
 - (4) $4\sqrt{3}$
-

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]

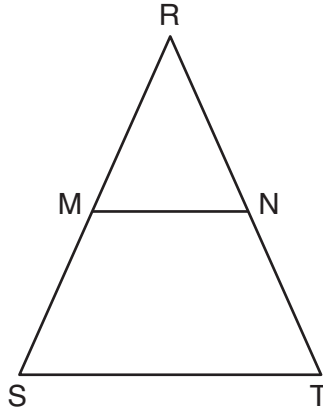
- 29 The image of \overline{RS} after a reflection through the origin is $\overline{R'S'}$. If the coordinates of the endpoints of \overline{RS} are $R(2, -3)$ and $S(5, 1)$, state and label the coordinates of R' and S' .

[The use of the set of axes below is optional.]

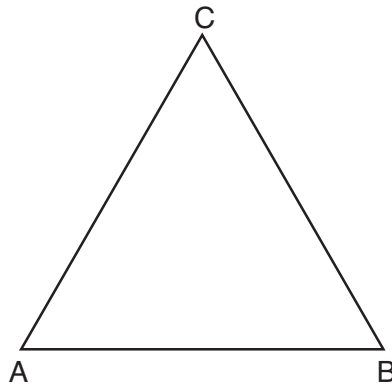


30 A paper container in the shape of a right circular cone has a radius of 3 inches and a height of 8 inches. Determine and state the number of cubic inches in the volume of the cone, in terms of π .

31 In isosceles triangle RST shown below, $\overline{RS} \cong \overline{RT}$, M and N are midpoints of \overline{RS} and \overline{RT} , respectively, and \overline{MN} is drawn. If $MN = 3.5$ and the perimeter of $\triangle RST$ is 25, determine and state the length of \overline{NT} .



32 In the diagram below, $\triangle ABC$ is equilateral.



Using a compass and straightedge, construct a new equilateral triangle congruent to $\triangle ABC$ in the space below.

[Leave all construction marks.]

33 Write an equation of the line that is perpendicular to the line whose equation is $2y = 3x + 12$ and that passes through the origin.

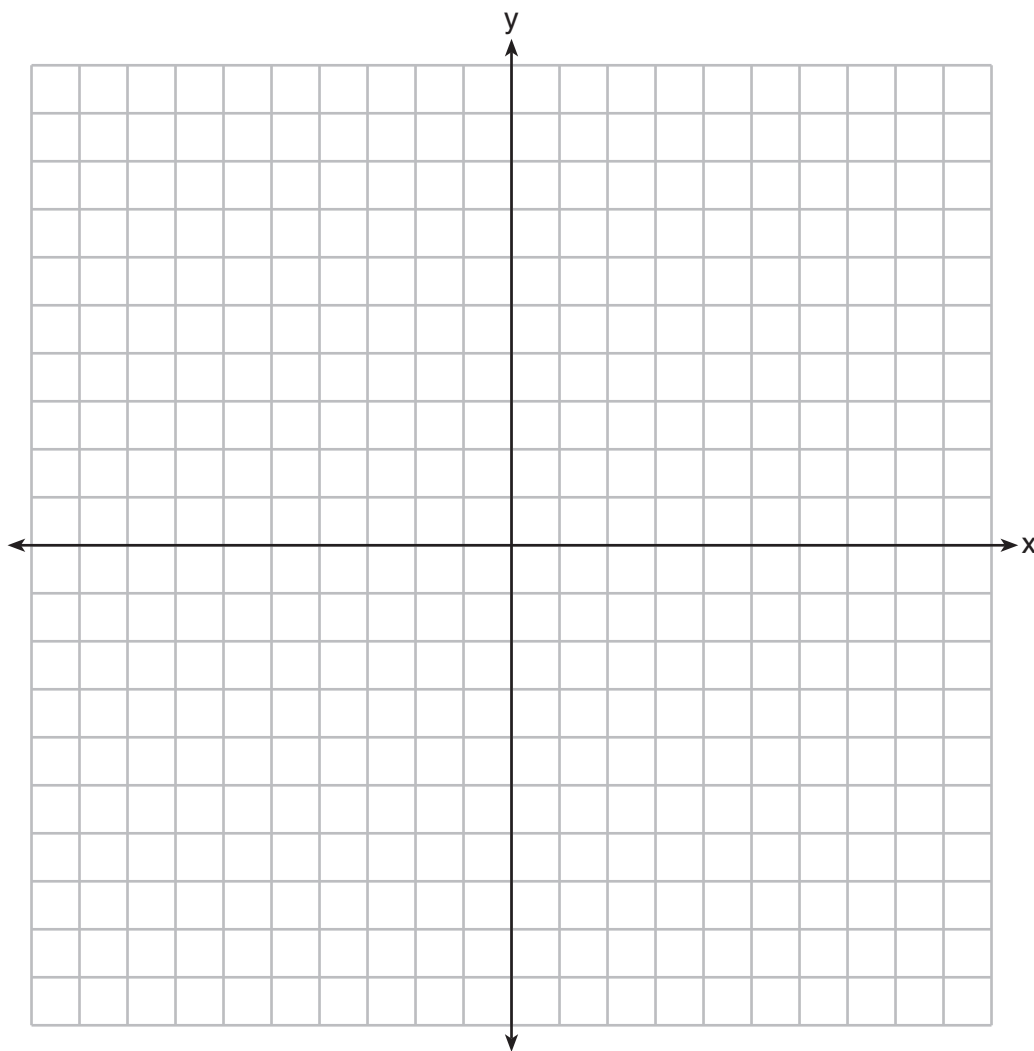
34 Rectangle $KLMN$ has vertices $K(0,4)$, $L(4,2)$, $M(1,-4)$, and $N(-3,-2)$. Determine and state the coordinates of the point of intersection of the diagonals.

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 5 units from the point $(2, -3)$ and the locus of points 2 units from the line whose equation is $y = -1$.

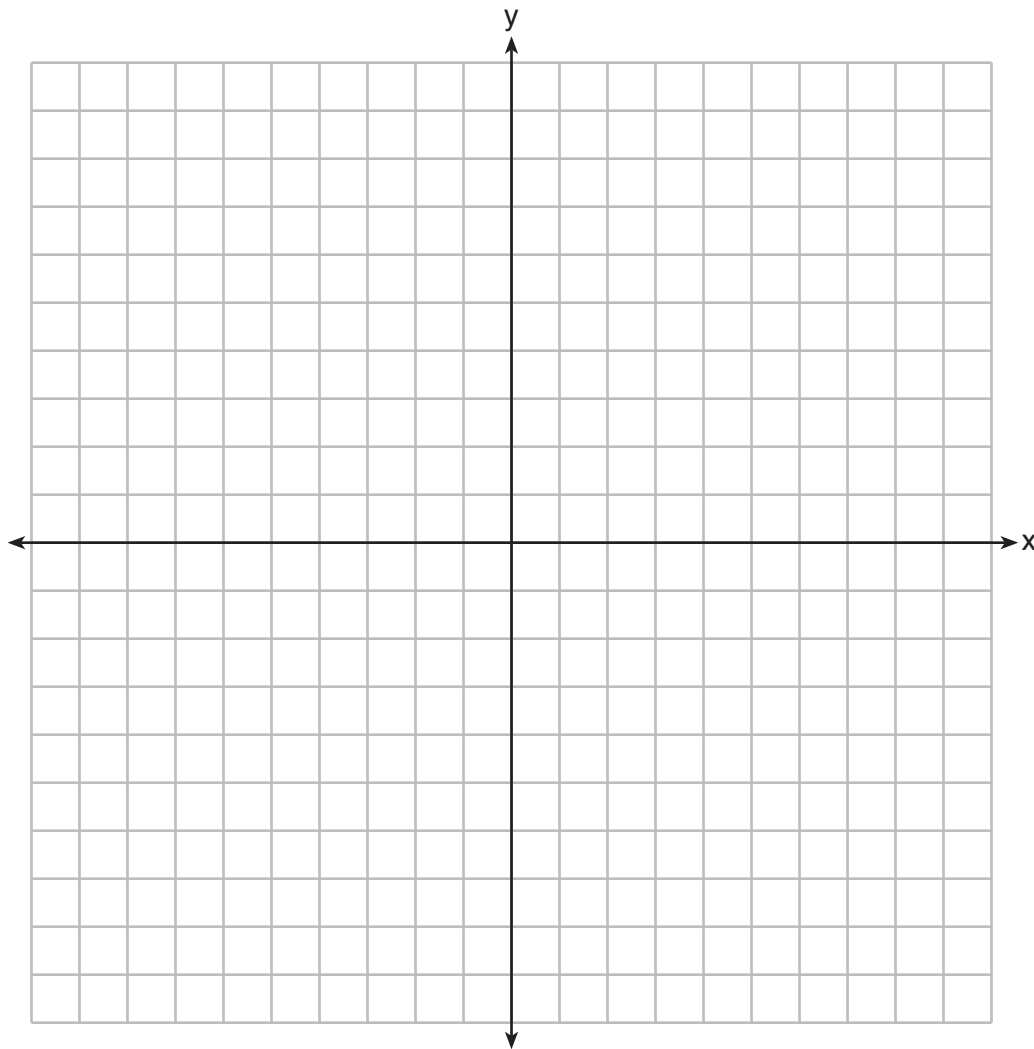
State the coordinates of all points that satisfy *both* conditions.



36 If \overline{AB} is defined by the endpoints $A(4,2)$ and $B(8,6)$, write an equation of the line that is the perpendicular bisector of \overline{AB} .

37 On the set of axes below, graph and label circle A whose equation is $(x + 4)^2 + (y - 2)^2 = 16$ and circle B whose equation is $x^2 + y^2 = 9$.

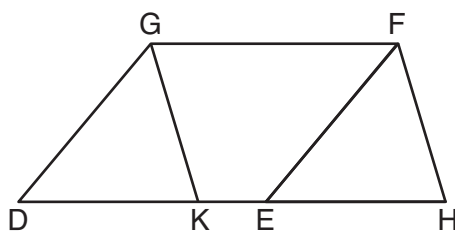
Determine, in simplest radical form, the length of the line segment with endpoints at the centers of circles A and B .



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 Given: Parallelogram $DEFG$, K and H are points on \overrightarrow{DE} such that $\angle DGK \cong \angle EFH$ and \overline{GK} and \overline{FE} are drawn



Prove: $\overline{DK} \cong \overline{EH}$

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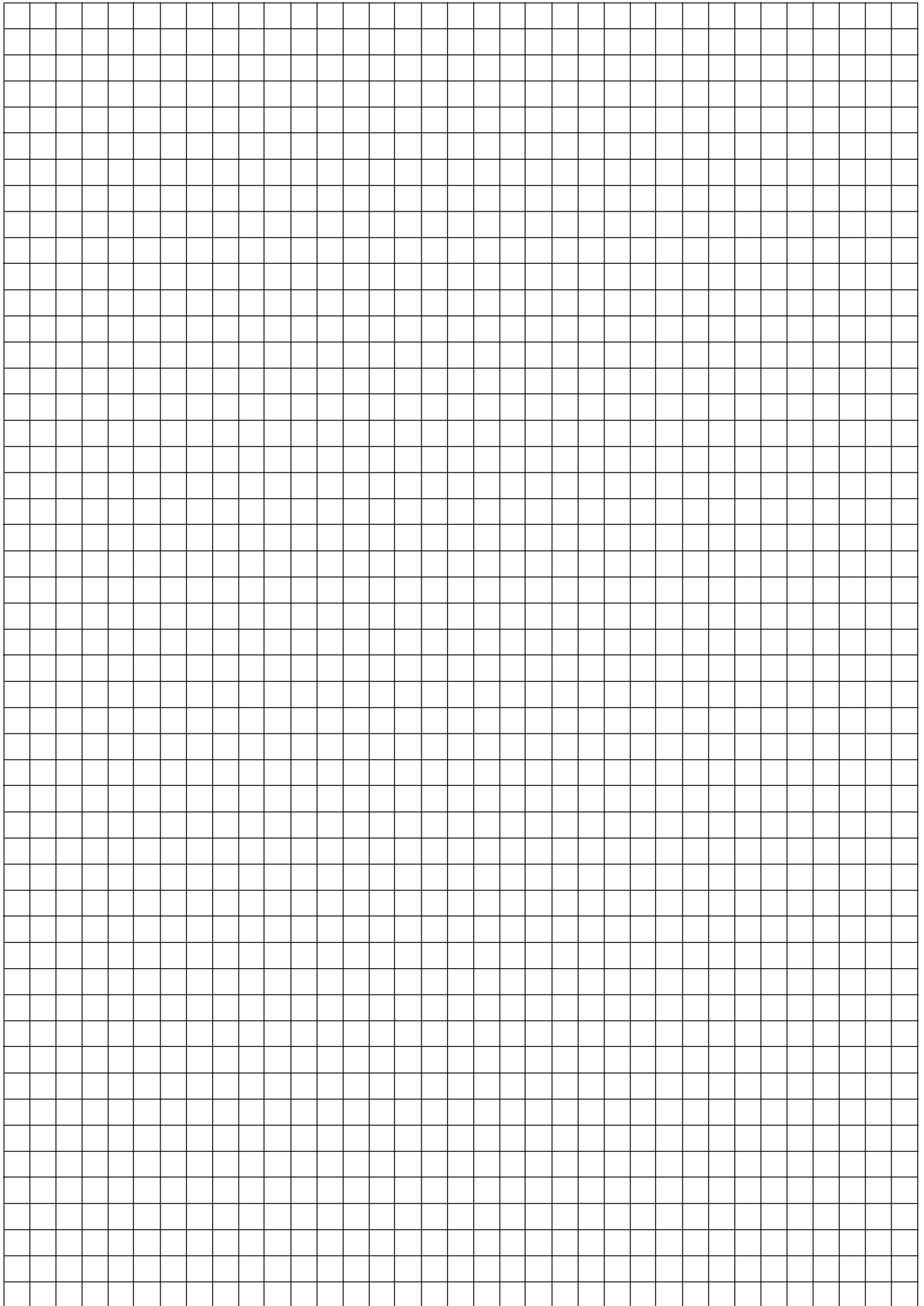
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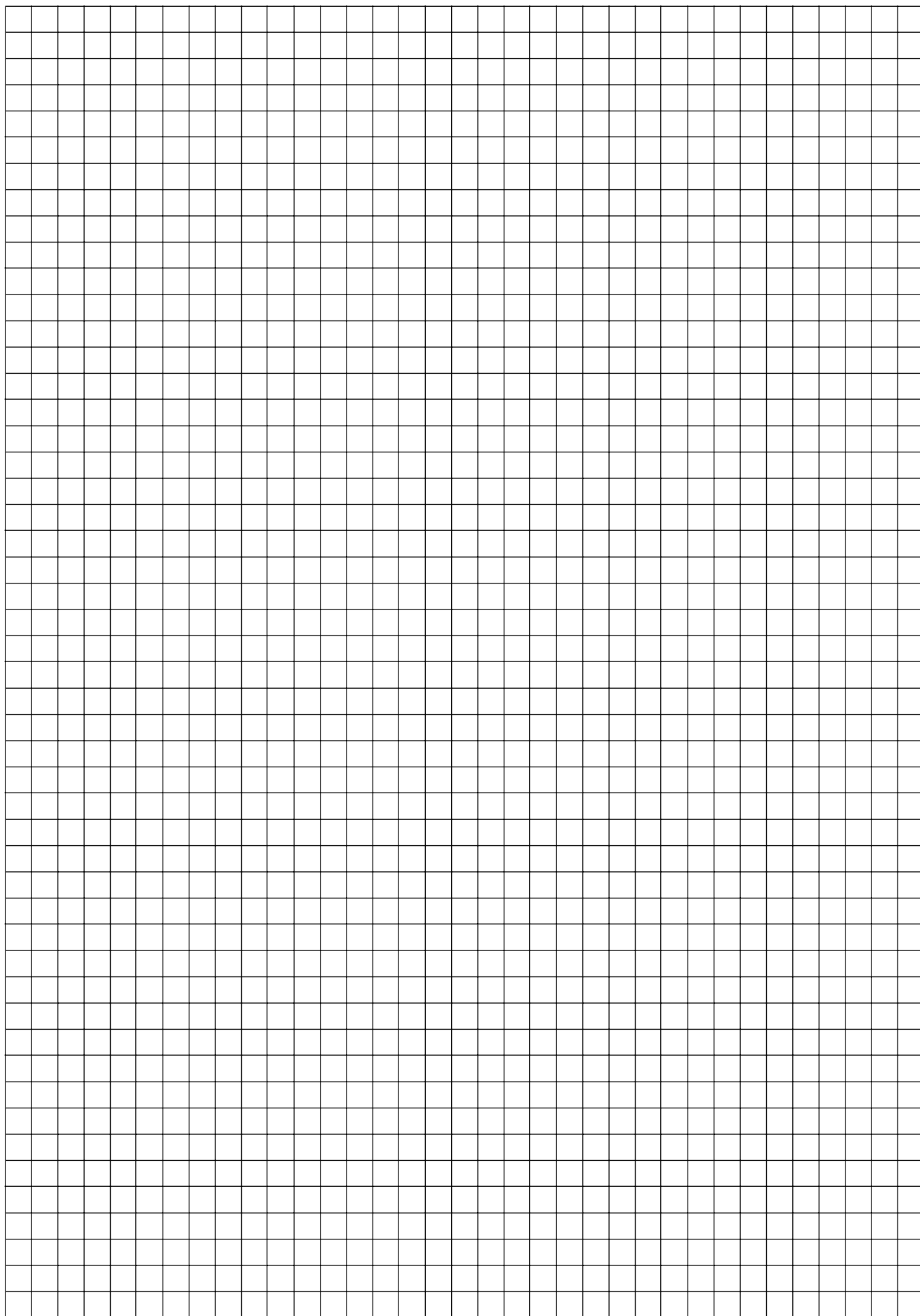
Scrap Graph Paper — This sheet will *not* be scored.

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FOR TEACHERS ONLY

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

GEOMETRY

Thursday, August 13, 2015 — 8:30 to 11:30 a.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*.

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 Thursday, August 13, 2015. 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. Allow credit if the student has written the correct answer instead of the numeral 1, 2, 3, or 4.

(1) 4	(11) 2	(21) 2
(2) 3	(12) 3	(22) 1
(3) 2	(13) 1	(23) 3
(4) 2	(14) 1	(24) 1
(5) 4	(15) 2	(25) 3
(6) 4	(16) 4	(26) 3
(7) 3	(17) 1	(27) 2
(8) 1	(18) 1	(28) 3
(9) 3	(19) 2	
(10) 2	(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] $R'(-2,3)$ and $S'(-5,-1)$ are stated.

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

or

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

or

[1] Both points are graphed correctly, but the coordinates are not stated or are stated incorrectly.

or

[1] $(-2,3)$ and $(-5,-1)$, but the points 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.

(30) [2] 24π , 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, but the answer is written as a decimal.

or

[1] 24π , 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] 4.5, 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 9, the length of \overline{RT} , but no further correct work is shown.
- or***
- [1] Appropriate work is shown to find 12.5, the perimeter of $\triangle RMN$, but no further correct work is shown.
- or***
- [1] 4.5, 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.
- [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.

(33) [2] $y = -\frac{2}{3}x$ or an equivalent equation is written, 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 $-\frac{2}{3}$, the slope of the perpendicular line, but no further correct work is shown.

or

[1] $y = -\frac{2}{3}x$, but no work is shown.

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

(34) [2] $\left(\frac{1}{2}, 0\right)$, 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] $\left(\frac{1}{2}, 0\right)$, 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] Both loci are graphed correctly, and $(-3,-3)$, $(-1,1)$, $(5,1)$, and $(7,-3)$ are stated.

[3] Both loci are graphed, but one graphing error is made.

or

[3] Both loci are graphed correctly, but only the coordinates of two or three points of intersection of the loci are stated correctly.

[2] Both loci are graphed, but two or more graphing errors are made.

or

[2] Both loci are graphed, but one conceptual error is made.

or

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

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

or

[1] $(-3,-3)$, $(-1,1)$, $(5,1)$, and $(7,-3)$ are stated, but no loci are graphed.

[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] $y - 4 = -(x - 6)$ or an equivalent equation is written, and correct work is shown.
- [3] Appropriate work is shown, but one computational error is made.
- or***
- [3] The correct slope and midpoint of the given line segment and the correct slope of the perpendicular bisector of this segment are 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] The correct slopes are found for both the given line segment and the perpendicular bisector, but no further correct work is shown.
- or***
- [2] The correct slope and midpoint of the given line segment are found, but no further correct work is shown.
- [1] Appropriate work is shown, but one conceptual error and one computational error are made.
- or***
- [1] Only the correct slope or the correct midpoint of the given line segment is found.
- or***
- [1] $y - 4 = -(x - 6)$ or an equivalent equation is written, 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] Both circles are graphed correctly, and at least one is labeled, either by its center or its equation, and $2\sqrt{5}$, and correct work is shown.
- [3] Appropriate work is shown, but one computational, graphing, labeling, or simplification error is made.
- or***
- [3] Both circles are graphed correctly, and at least one is labeled, and $2\sqrt{5}$, but no work is shown.
- [2] Appropriate work is shown, but two or more computational, graphing, labeling, or simplification errors are made.
- or***
- [2] Appropriate work is shown, but one conceptual error is made.
- or***
- [2] Both circles are graphed correctly, and at least one is labeled, but no further correct work is shown.
- or***
- [2] Appropriate work is shown to find $2\sqrt{5}$, but neither circle is graphed.
- [1] One circle is graphed and labeled correctly, but no further correct work is shown.
- or***
- [1] Both circles are graphed correctly, but neither is labeled, and no further correct work is shown.
- or***
- [1] $2\sqrt{5}$, but no work is shown and no graphs are drawn.
- [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] A complete and correct proof that includes a conclusion is written.
- [5] 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 the concluding statement is missing.
- or*
- [5] $\triangle DKG \cong \triangle EHF$ is proven, but no further correct work is shown.
- [4] 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.
- [3] A proof is written that demonstrates a good understanding of the method of proof, but one conceptual error is made.
- [2] A proof is written that demonstrates a method of proof, but one conceptual error is made, and one statement and/or reason is missing or is incorrect.
- or*
- [2] Some correct relevant statements and reasons about the proof are made.
- [1] Only one correct relevant 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.
-

Map to Core Curriculum

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

Regents Examination in Geometry

August 2015

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

The Chart for Determining the Final Examination Score for the August 2015 Regents Examination in Geometry will be posted on the Department's web site at: <http://www.p12.nysed.gov/assessment/> on Thursday, August 13, 2015. 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 2015

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

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.