JEFFERSON MATH PROJECT REGENTS BY TYPE

The NY Geometry Regents Exams
Fall 2008-August 2009
(Answer Key)

www.jmap.org

Dear Sir

I have to acknolege the reciept of your favor of May 14. in which you mention that you have finished the 6. first books of Euclid, plane trigonometry, surveying & algebra and ask whether I think a further pursuit of that branch of science would be useful to you. there are some propositions in the latter books of Euclid, & some of Archimedes, which are useful, & I have no doubt you have been made acquainted with them. trigonometry, so far as this, is most valuable to every man, there is scarcely a day in which he will not resort to it for some of the purposes of common life. the science of calculation also is indispensible as far as the extraction of the square & cube roots; Algebra as far as the quadratic equation & the use of logarithms are often of value in ordinary cases: but all beyond these is but a luxury; a delicious luxury indeed; but not to be indulged in by one who is to have a profession to follow for his subsistence. in this light I view the conic sections, curves of the higher orders, perhaps even spherical trigonometry, Algebraical operations beyond the 2d dimension, and fluxions.

Letter from Thomas Jefferson to William G. Munford, Monticello, June 18, 1799.

Geometry Multiple Choice Regents Exam Questions
Answer Section

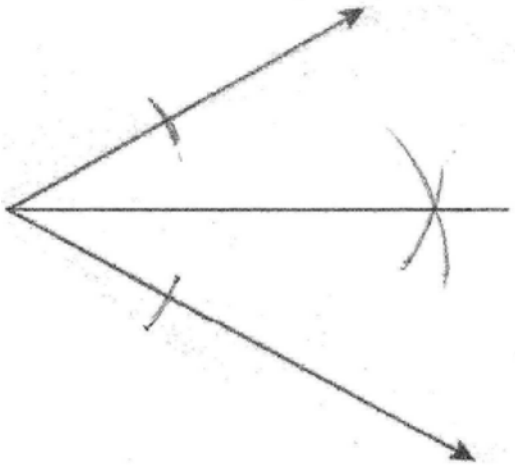
1. ANS: B TOP: Writing Equations of Circles
2. ANS: B TOP: Parallel and Perpendicular Lines-GE
3. ANS: C TOP: Planes
4. ANS: B TOP: Parallel and Perpendicular Lines-GE
5. ANS: A TOP: Special Quadrilaterals
6. ANS: A TOP: Volume-GE
7. ANS: A TOP: Compositions of Transformations
8. ANS: C TOP: Planes
9. ANS: A TOP: Quadratic-Linear Systems-GE
10. ANS: A TOP: Special Quadrilaterals
11. ANS: B TOP: Similarity
12. ANS: A TOP: Equations of Circles
13. ANS: A TOP: Similarity
14. ANS: B TOP: Pythagoras-GE
15. ANS: D TOP: Similarity
16. ANS: A TOP: Finding the Center and Radius of Circles
17. ANS: A TOP: Distance
18. ANS: B TOP: Midpoint
19. ANS: C TOP: Medians, Altitudes, Bisectors and Midsegments
20. ANS: A TOP: Compositions of Transformations
21. ANS: B TOP: Planes
22. ANS: D TOP: Isosceles Triangles
23. ANS: C TOP: Equations of Circles
24. ANS: D TOP: Quadratic-Linear Systems-GE
25. ANS: C TOP: Reflections
26. ANS: B TOP: Interior and Exterior Angles of Triangles
27. ANS: D TOP: Parallel and Perpendicular Lines-GE
28. ANS: C TOP: Special Quadrilaterals
29. ANS: C TOP: Tangents
30. ANS: C TOP: Parallel and Perpendicular Lines-GE
31. ANS: B TOP: Identifying Transformations
32. ANS: B TOP: Medians, Altitudes, Bisectors and Midsegments
33. ANS: B TOP: Chords
34. ANS: D TOP: Translations
35. ANS: C TOP: Logical Reasoning
36. ANS: B TOP: Chords
37. ANS: A TOP: Classifying Triangles
38. ANS: A TOP: Similarity Proofs
39. ANS: A TOP: Interior and Exterior Angles of Triangles
40. ANS: C TOP: Constructions
41. ANS: D TOP: Triangle Inequalities
42. ANS: D TOP: Classifying Solids

43. ANS: D TOP: Medians, Altitudes, Bisectors and Midsegments
44. ANS: B TOP: Midpoint
45. ANS: C TOP: Medians, Altitudes, Bisectors and Midsegments
46. ANS: C TOP: Constructions
47. ANS: C TOP: Compositions of Transformations
48. ANS: B TOP: Equations of Circles
49. ANS: A TOP: Volume-GE
50. ANS: B TOP: Triangle Inequalities
51. ANS: D TOP: Tangents
52. ANS: D TOP: Equations of Circles
53. ANS: B TOP: Chords
54. ANS: C TOP: Classifying Solids
55. ANS: C TOP: Constructions
56. ANS: D TOP: Constructions
57. ANS: D TOP: Medians, Altitudes, Bisectors and Midsegments
58. ANS: A TOP: Volume-GE
59. ANS: B TOP: Planes
60. ANS: D TOP: Angles Involving Parallel Lines
61. ANS: D TOP: Logical Reasoning
62. ANS: D TOP: Planes
63. ANS: D TOP: Contrapositive
64. ANS: D TOP: Interior and Exterior Angles of Other Polygons
65. ANS: C TOP: Congruency Proofs
66. ANS: A TOP: Constructions
67. ANS: A TOP: Interior and Exterior Angles of Triangles
68. ANS: B TOP: Parallel and Perpendicular Lines-GE
69. ANS: D TOP: Midpoint
70. ANS: C TOP: Chords, Secants and Tangents
71. ANS: D TOP: Special Quadrilaterals
72. ANS: C TOP: Chords
73. ANS: A TOP: Planes
74. ANS: A TOP: Equations of Circles
75. ANS: D TOP: Identifying Transformations
76. ANS: D TOP: Perimeter, Area and Volume of Similar Figures
77. ANS: D TOP: Similarity
78. ANS: C TOP: Congruency Proofs
79. ANS: B TOP: Chords, Secants and Tangents
80. ANS: A TOP: Translations
81. ANS: B TOP: Parallel and Perpendicular Lines-GE
82. ANS: D TOP: Locus
83. ANS: A TOP: Identifying Transformations
84. ANS: C TOP: Quadratic-Linear Systems-GE

Geometry 2 Point Regents Exam Questions

Answer Section

1. ANS:



TOP: Constructions

2. ANS:
20

TOP: Similarity

3. ANS:
25

TOP: Distance

4. ANS:
$y = -2x + 14$

TOP: Parallel and Perpendicular Lines-GE

5. ANS:
3

TOP: Special Quadrilaterals

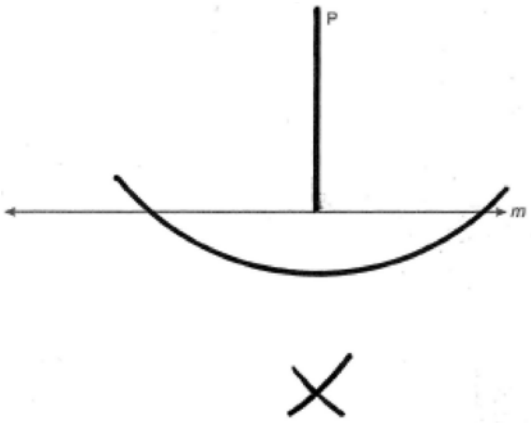
6. ANS:
26

TOP: Interior and Exterior Angles of Triangles

7. ANS:
True. The first statement is true and the second statement is false. In a disjunction, if either statement is true, the disjunction is true.

TOP: Logical Reasoning

8. ANS:



TOP: Constructions

9. ANS:
$\overline{AC}$

TOP: Interior and Exterior Angles of Triangles

10. ANS:
2016

TOP: Volume-GE

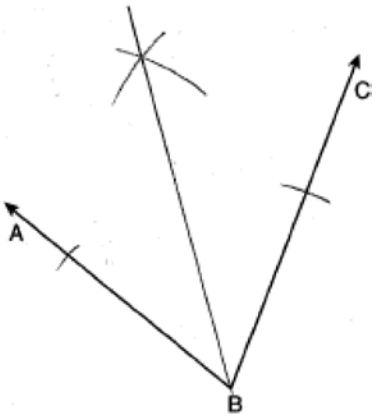
11. ANS:
$y = \frac{2}{3}x - 9$

TOP: Parallel and Perpendicular Lines-GE

12. ANS:
Contrapositive-If two angles of a triangle are not congruent, the sides opposite those angles are not congruent.

TOP: Contrapositive

13. ANS:



TOP: Constructions

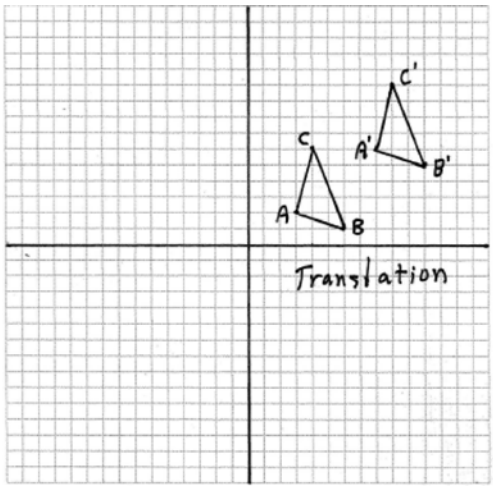
14. ANS:
$2\sqrt{3}$

TOP: Similarity

15. ANS:
22.4

TOP: Volume-GE

16. ANS:

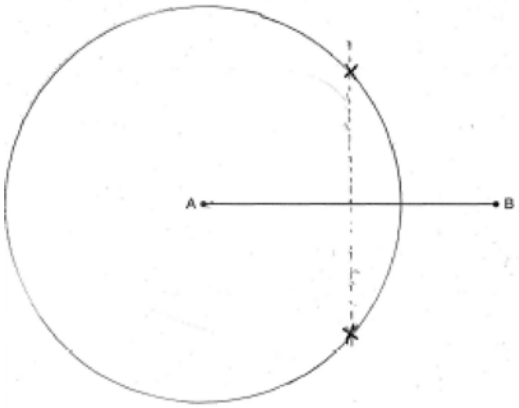


TOP: Identifying Transformations

17. ANS:
20

TOP: Medians, Altitudes, Bisectors and Midsegments

18. ANS:



TOP: Locus

Geometry 4 Point Regents Exam Questions
Answer Section

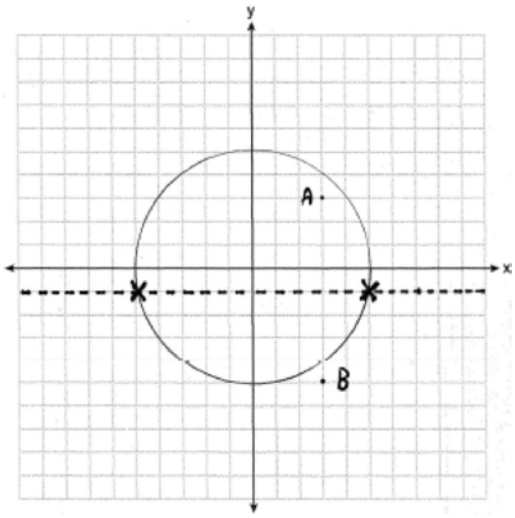
1. ANS:
$15+5\sqrt{5}$

TOP: Perimeter

2. ANS:
$y=\frac{4}{3}x-6$

TOP: Slope Intercept Form of a Line

3. ANS:



TOP: Locus

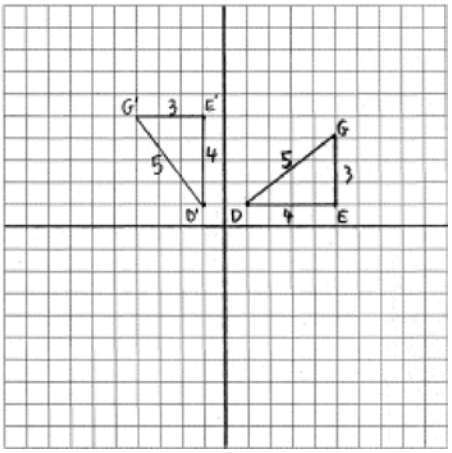
4. ANS:
18

TOP: Tangents

5. ANS:
$\angle D$, $\angle G$ and 24° or $\angle E$, $\angle F$ and 84°

TOP: Chords

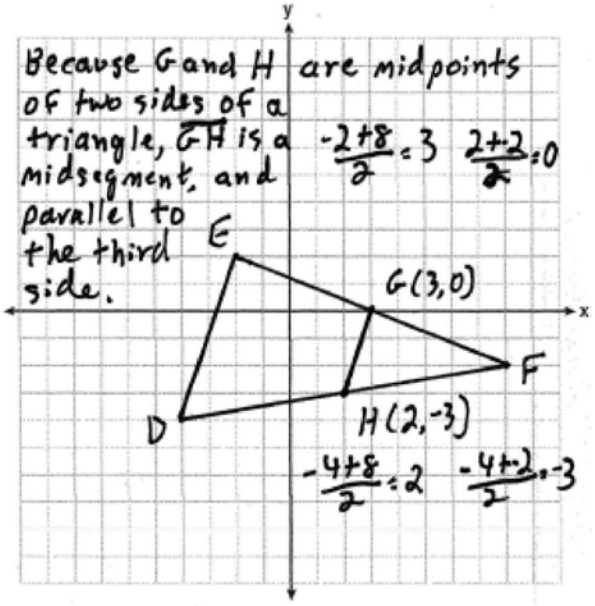
6. ANS:



$D'(-1,1)$, $E'(-1,5)$, $G'(-4,5)$

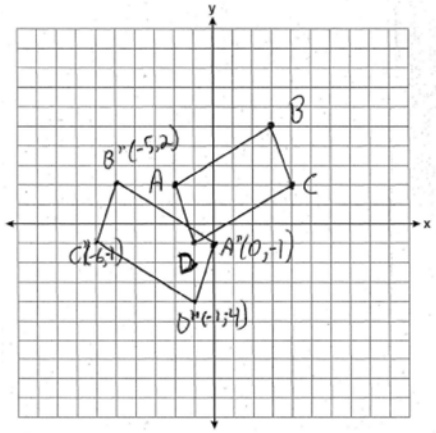
TOP: Rotations

7. ANS:



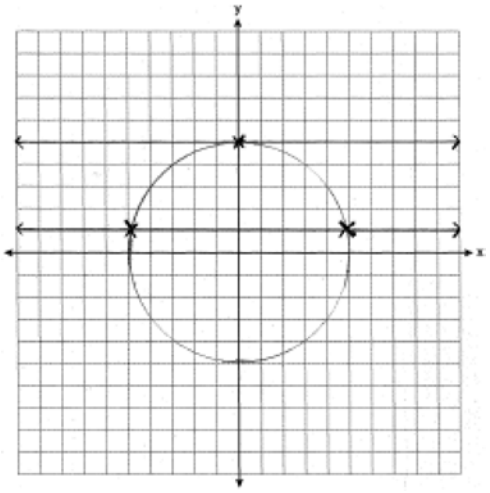
TOP: Medians, Altitudes, Bisectors and Midsegments

8. ANS:



TOP: Compositions of Transformations

9. ANS:



TOP: Locus-2

Geometry 6 Point Regents Exam Questions
Answer Section

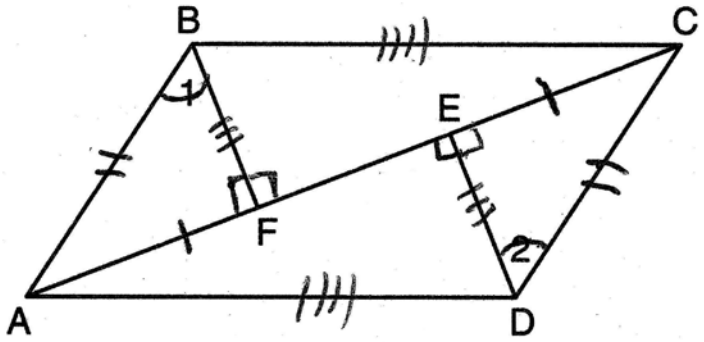
1. ANS:
Because $\overline{AB} \parallel \overline{DC}$, $\overset{\frown}{AD} \cong \overset{\frown}{BC}$ since parallel chords intersect congruent arcs. $\angle BDC \cong \angle ACD$ because inscribed angles that intercept congruent arcs are congruent. $\overline{AD} \cong \overline{BC}$ since congruent chords intersect congruent arcs. $\overline{DC} \cong \overline{CD}$ because of the reflexive property. Therefore, $\triangle ACD \cong \triangle BDC$ because of SAS.

TOP: Circle Proofs

2. ANS:
$\overline{AC} \cong \overline{EC}$ and $\overline{DC} \cong \overline{BC}$ because of the definition of midpoint. $\angle ACB \cong \angle ECD$ because of vertical angles. $\triangle ABC \cong \triangle EDC$ because of SAS. $\angle CDE \cong \angle CBA$ because of CPCTC. $\overline{BD}$ is a transversal intersecting $\overline{AB}$ and $\overline{ED}$. Therefore $\overline{AB} \parallel \overline{DE}$ because $\angle CDE$ and $\angle CBA$ are congruent alternate interior angles.

TOP: Congruency Proofs

3. ANS:



$\overline{FE} \cong \overline{FE}$ (Reflexive Property); $\overline{AE} - \overline{FE} \cong \overline{FC} - \overline{EF}$ (Angle Subtraction Theorem); $\overline{AF} \cong \overline{CE}$ (Substitution); $\angle BFA \cong \angle DEC$ (All right angles are congruent); $\triangle BFA \cong \triangle DEC$ (AAS); $\overline{AB} \cong \overline{CD}$ and $\overline{BF} \cong \overline{DE}$ (CPCTC); $\angle BFC \cong \angle DEA$ (All right angles are congruent); $\triangle BFC \cong \triangle DEA$ (SAS); $\overline{AD} \cong \overline{CB}$ (CPCTC); $ABCD$ is a parallelogram (opposite sides of quadrilateral $ABCD$ are congruent)

TOP: Quadrilateral Proofs