JEFFERSON MATH PROJECT REGENTS BY DATE

The NY Integrated Algebra Regents Exams
Fall, 2008-August, 2009
(Answer Key)

www.jmap.org

Dear Sir

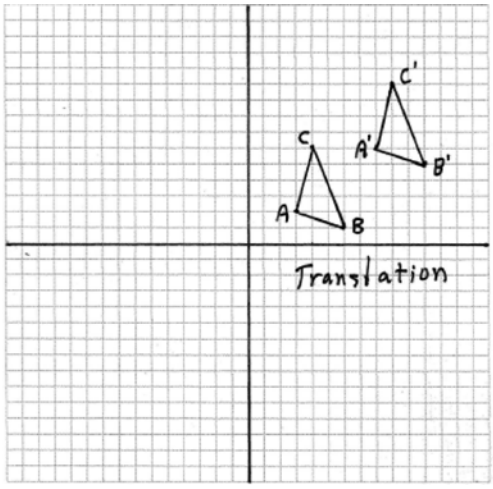
I have to acknolege the reciept of your favor of May 14. in which you mention that you have finished the 6. first books of Euclid, plane trigonometry, surveying & algebra and ask whether I think a further pursuit of that branch of science would be useful to you. there are some propositions in the latter 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.

fall08ge
Answer Section

1	ANS: 3	PTS: 2	TOP: Special Quadrilaterals
2	ANS: 4	PTS: 2	TOP: Logical Reasoning
3	ANS: 1	PTS: 2	TOP: Translations
4	ANS: 3	PTS: 2	TOP: Constructions
5	ANS: 3	PTS: 2	TOP: Quadratic-Linear Systems-GE
6	ANS: 2	PTS: 2	TOP: Planes
7	ANS: 1	PTS: 2	TOP: Constructions
8	ANS: 3	PTS: 2	TOP: Classifying Solids
9	ANS: 1	PTS: 2	TOP: Classifying Triangles
10	ANS: 4	PTS: 2	TOP: Medians, Altitudes, Bisectors and Midsegments
11	ANS: 3	PTS: 2	TOP: Chords
12	ANS: 2	PTS: 2	TOP: Parallel and Perpendicular Lines-GE
13	ANS: 2	PTS: 2	TOP: Midpoint
14	ANS: 3	PTS: 2	TOP: Equations of Circles
15	ANS: 1	PTS: 2	TOP: Volume-GE
16	ANS: 3	PTS: 2	TOP: Planes
17	ANS: 2	PTS: 2	TOP: Chords, Secants and Tangents
18	ANS: 4	PTS: 2	TOP: Translations
19	ANS: 2	PTS: 2	TOP: Triangle Inequalities
20	ANS: 1	PTS: 2	TOP: Equations of Circles
21	ANS: 1	PTS: 2	TOP: Similarity Proofs
22	ANS: 4	PTS: 2	TOP: Parallel and Perpendicular Lines-GE
23	ANS: 1	PTS: 2	TOP: Compositions of Transformations
24	ANS: 4	PTS: 2	TOP: Tangents
25	ANS: 3	PTS: 2	TOP: Medians, Altitudes, Bisectors and Midsegments
26	ANS: 4	PTS: 2	TOP: Perimeter, Area and Volume of Similar Figures
27	ANS: 4	PTS: 2	TOP: Interior and Exterior Angles of Other Polygons
28	ANS: 2	PTS: 2	TOP: Parallel and Perpendicular Lines-GE
29	ANS: $2\sqrt{3}$		
	PTS: 2	TOP: Similarity	

30 ANS:

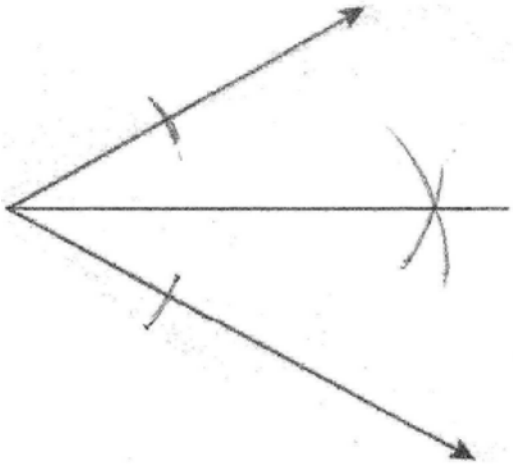


PTS: 2 TOP: Identifying Transformations

31 ANS:
25

PTS: 2 TOP: Distance

32 ANS:



PTS: 2 TOP: Constructions

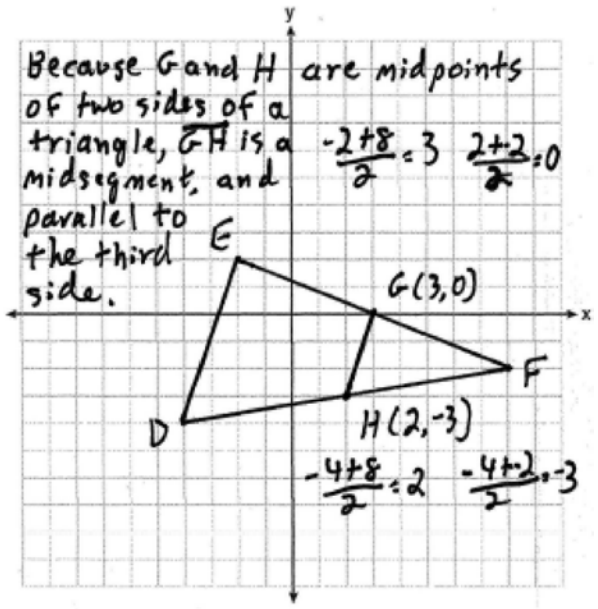
33 ANS:
22.4

PTS: 2 TOP: Volume-GE

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

PTS: 2 TOP: Contrapositive

35 ANS:



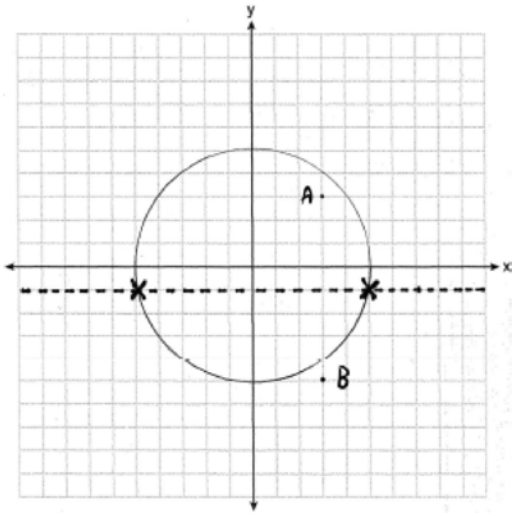
PTS: 4 TOP: Medians, Altitudes, Bisectors and Midsegments

36 ANS:

$\angle D$, $\angle G$ and 24° or $\angle E$, $\angle F$ and 84°

PTS: 4 TOP: Chords

37 ANS:



PTS: 4 TOP: Locus

38 ANS:

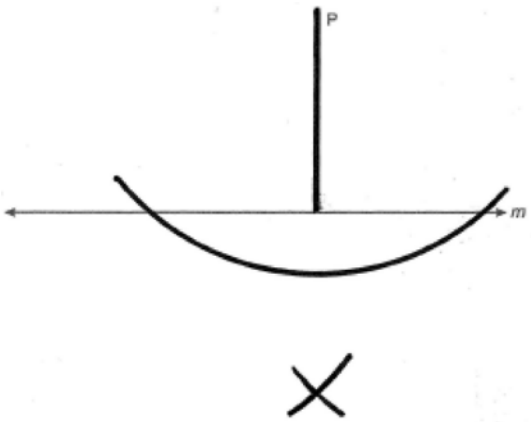
Because $\overline{AB} \parallel \overline{DC}$, $\overset{\frown}{AD} \cong \overset{\frown}{BC}$ since parallel chords intersect congruent arcs. $\angle BDC \cong \angle ACD$ because inscribed angles that intercept congruent arcs are congruent. $\overline{AD} \cong \overline{BC}$ since congruent chords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

PTS: 6 TOP: Circle Proofs

0609ge
Answer Section

1	ANS: 1	PTS: 2	TOP: Interior and Exterior Angles of Triangles
2	ANS: 3	PTS: 2	TOP: Congruency Proofs
3	ANS: 1	PTS: 2	TOP: Identifying Transformations
4	ANS: 4	PTS: 2	TOP: Classifying Solids
5	ANS: 3	PTS: 2	TOP: Reflections
6	ANS: 2	PTS: 2	TOP: Chords
7	ANS: 2	PTS: 2	TOP: Parallel and Perpendicular Lines-GE
8	ANS: 3	PTS: 2	TOP: Compositions of Transformations
9	ANS: 1	PTS: 2	TOP: Interior and Exterior Angles of Triangles
10	ANS: 2	PTS: 2	TOP: Equations of Circles
11	ANS: 2	PTS: 2	TOP: Interior and Exterior Angles of Triangles
12	ANS: 4	PTS: 2	TOP: Locus
13	ANS: 4	PTS: 2	TOP: Contrapositive
14	ANS: 2	PTS: 2	TOP: Medians, Altitudes, Bisectors and Midsegments
15	ANS: 1	PTS: 2	TOP: Similarity
16	ANS: 3	PTS: 2	TOP: Chords, Secants and Tangents
17	ANS: 2	PTS: 2	TOP: Similarity
18	ANS: 1	PTS: 2	TOP: Planes
19	ANS: 4	PTS: 2	TOP: Midpoint
20	ANS: 1	PTS: 2	TOP: Equations of Circles
21	ANS: 1	PTS: 2	TOP: Volume-GE
22	ANS: 4	PTS: 2	TOP: Equations of Circles
23	ANS: 1	PTS: 2	TOP: Quadratic-Linear Systems-GE
24	ANS: 4	PTS: 2	TOP: Constructions
25	ANS: 3	PTS: 2	TOP: Constructions
26	ANS: 2	PTS: 2	TOP: Parallel and Perpendicular Lines-GE
27	ANS: 4	PTS: 2	TOP: Similarity
28	ANS: 3	PTS: 2	TOP: Planes
29	ANS: 20		
	PTS: 2	TOP: Medians, Altitudes, Bisectors and Midsegments	

30 ANS:



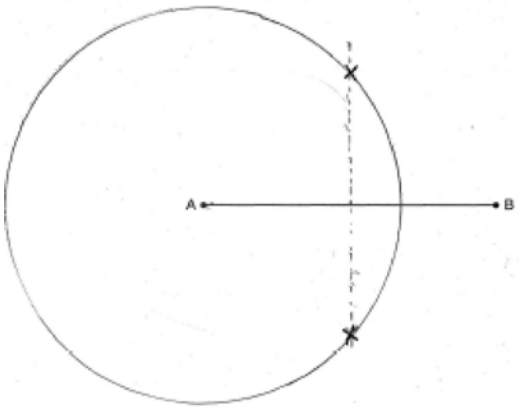
PTS: 2 TOP: Constructions

31 ANS:

$y = -2x + 14$

PTS: 2 TOP: Parallel and Perpendicular Lines-GE

32 ANS:



PTS: 2 TOP: Locus

33 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.

PTS: 2 TOP: Logical Reasoning

34 ANS:

20

PTS: 2 TOP: Similarity

35 ANS:

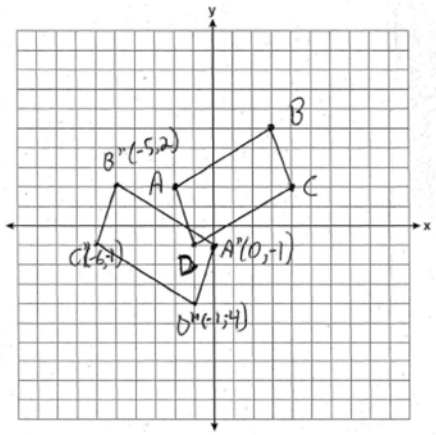
18

PTS: 4 TOP: Tangents

36 ANS:
$15 + 5\sqrt{5}$

PTS: 4 TOP: Perimeter

37 ANS:



PTS: 4 TOP: Compositions of Transformations

38 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.

PTS: 6 TOP: Congruency Proofs

0809ge
Answer Section

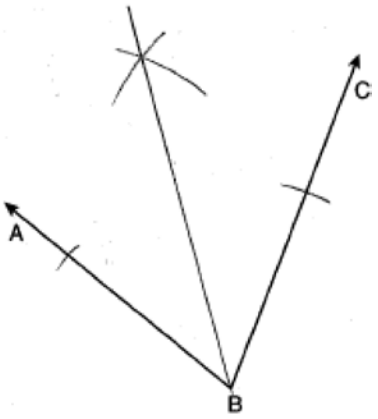
1 ANS: 4 PTS: 2 TOP: Angles Involving Parallel Lines
2 ANS: 3 PTS: 2 TOP: Constructions
3 ANS: 4 PTS: 2 TOP: Isosceles Triangles
4 ANS: 2 PTS: 2 TOP: Chords
5 ANS: 4 PTS: 2 TOP: Special Quadrilaterals
6 ANS: 2 PTS: 2 TOP: Identifying Transformations
7 ANS: 1 PTS: 2 TOP: Special Quadrilaterals
8 ANS: 1 PTS: 2 TOP: Compositions of Transformations
9 ANS: 3 PTS: 2 TOP: Parallel and Perpendicular Lines-GE
10 ANS: 2 PTS: 2 TOP: Midpoint
11 ANS: 1 PTS: 2 TOP: Finding the Center and Radius of Circles
12 ANS: 4 PTS: 2 TOP: Quadratic-Linear Systems-GE
13 ANS: 3 PTS: 2 TOP: Congruency Proofs
14 ANS: 4 PTS: 2 TOP: Planes
15 ANS: 4 PTS: 2 TOP: Identifying Transformations
16 ANS: 2 PTS: 2 TOP: Pythagoras-GE
17 ANS: 4 PTS: 2 TOP: Triangle Inequalities
18 ANS: 1 PTS: 2 TOP: Special Quadrilaterals
19 ANS: 1 PTS: 2 TOP: Distance
20 ANS: 3 PTS: 2 TOP: Medians, Altitudes, Bisectors and Midsegments
21 ANS: 2 PTS: 2 TOP: Writing Equations of Circles
22 ANS: 4 PTS: 2 TOP: Similarity
23 ANS: 2 PTS: 2 TOP: Chords
24 ANS: 3 PTS: 2 TOP: Logical Reasoning
25 ANS: 4 PTS: 2 TOP: Medians, Altitudes, Bisectors and Midsegments
26 ANS: 1 PTS: 2 TOP: Volume-GE
27 ANS: 2 PTS: 2 TOP: Planes
28 ANS: 3 PTS: 2 TOP: Tangents
29 ANS:
3

PTS: 2 TOP: Special Quadrilaterals
30 ANS:
2016

PTS: 2 TOP: Volume-GE
31 ANS:
$y = \frac{2}{3}x - 9$

PTS: 2 TOP: Parallel and Perpendicular Lines-GE

32 ANS:



PTS: 2 TOP: Constructions

33 ANS:
26

PTS: 2 TOP: Interior and Exterior Angles of Triangles

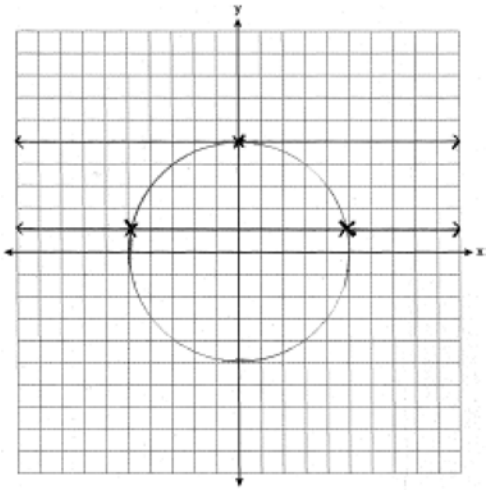
34 ANS:
$\overline{AC}$

PTS: 2 TOP: Interior and Exterior Angles of Triangles

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

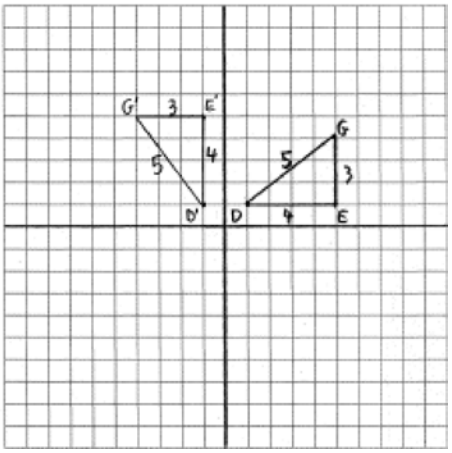
PTS: 4 TOP: Slope Intercept Form of a Line

36 ANS:



PTS: 4 TOP: Locus-2

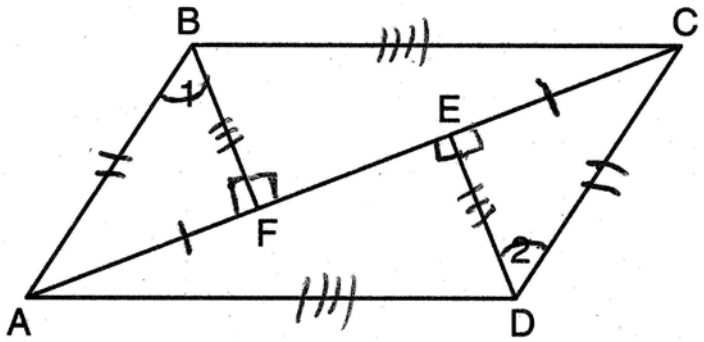
37 ANS:



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

PTS: 4 TOP: Rotations

38 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)

PTS: 6 TOP: Quadrilateral Proofs