JEFFERSON MATH PROJECT
REGENTS BY DATE

The NY Integrated Algebra Regents Exams
Fall, 2007-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.

fall07ia
Answer Section

1	ANS: 2	PTS: 2	TOP:	Scatter Plots
2	ANS: 3	PTS: 2	TOP:	Theoretical Probability
3	ANS: 3	PTS: 2	TOP:	Division of Powers
4	ANS: 4	PTS: 2	TOP:	Set Theory
5	ANS: 3	PTS: 2	TOP:	Identifying Properties
6	ANS: 3	PTS: 2	TOP:	Factoring the Difference of Perfect Squares-IA
7	ANS: 1	PTS: 2	TOP:	Analysis of Data
8	ANS: 3	PTS: 2	TOP:	Solving Linear Systems
9	ANS: 2	PTS: 2	TOP:	Box-and-Whisker Plots
10	ANS: 3	PTS: 2	TOP:	Set Theory
11	ANS: 1	PTS: 2	TOP:	Pythagoras-IA
12	ANS: 4	PTS: 2	TOP:	Volume-IA
13	ANS: 1	PTS: 2	TOP:	Writing Linear Equations
14	ANS: 2	PTS: 2	TOP:	Writing Linear Equations
15	ANS: 4	PTS: 2	TOP:	Modeling Inequalities
16	ANS: 3	PTS: 2	TOP:	Slope
17	ANS: 4	PTS: 2		
18	ANS: 2	PTS: 2	TOP:	Rational Expressions
19	ANS: 3	PTS: 2	TOP:	Exponential Functions
20	ANS: 2	PTS: 2	TOP:	Linear Inequalities
21	ANS: 1	PTS: 2	TOP:	Basic Trigonometric Ratios
22	ANS: 4	PTS: 2	TOP:	Absolute Value
23	ANS: 1	PTS: 2	TOP:	Error
24	ANS: 1	PTS: 2	TOP:	Interpreting Solutions
25	ANS: 2	PTS: 2	TOP:	Operations with Scientific Notation
26	ANS: 4	PTS: 2	TOP:	Geometric Applications of Quadratics
27	ANS: 4	PTS: 2	TOP:	Expressions
28	ANS: 1	PTS: 2	TOP:	Undefined Rationals
29	ANS: 4	PTS: 2	TOP:	Expressions
30	ANS: 4	PTS: 2	TOP:	Defining Functions-IA

31 ANS:

$30\sqrt{2}$

PTS: 2   TOP: Simplifying Radicals-IA

32 ANS:

4

PTS: 2   TOP: Solving Equations

33 ANS:

33.4

PTS: 2   TOP: Compositions of Polygons and Circles

34 ANS:
50, 1.5, 10

PTS: 3   TOP: Speed
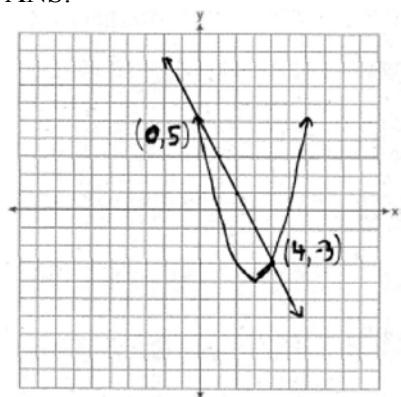35 ANS:
7

PTS: 3   TOP: Modeling Inequalities
36 ANS:

(S,S), (S,K), (S,D), (K,S), (K,K), (K,D), (D,S), (D,K), (D,D), $\dfrac{4}{9}$

PTS: 3   TOP: Sample Space
37 ANS:
The mean is 225000. The median is 175000, which better represents the value of the houses since it is closer to more of the values than the mean.

PTS: 4   TOP: Frequency Histograms, Bar Graphs and Tables-IA
38 ANS:

PTS: 4   TOP: Quadratic-Linear Systems-IA
39 ANS:
6, -2

PTS: 4   TOP: Solving Rationals-IA

0608ia
Answer Section

1	ANS: 1	PTS: 2	TOP:	Families of Functions
2	ANS: 4	PTS: 2	TOP:	Theoretical Probability
3	ANS: 1	PTS: 2	TOP:	Analysis of Data
4	ANS: 1	PTS: 2	TOP:	Factoring the Difference of Perfect Squares-IA
5	ANS: 4	PTS: 2	TOP:	Scatter Plots
6	ANS: 2	PTS: 2	TOP:	Writing Linear Systems
7	ANS: 1	PTS: 2	TOP:	Multiplication and Division of Powers
8	ANS: 3	PTS: 2	TOP:	Permutations
9	ANS: 2	PTS: 2	TOP:	Volume-IA
10	ANS: 4	PTS: 2	TOP:	Quadratic-Linear Systems-IA
11	ANS: 1	PTS: 2	TOP:	Identifying the Vertex of a Quadratic Given Graph
12	ANS: 3	PTS: 2	TOP:	Writing Linear Systems
13	ANS: 4	PTS: 2	TOP:	Division of Powers
14	ANS: 1	PTS: 2	TOP:	Parallel and Perpendicular Lines
15	ANS: 4	PTS: 2	TOP:	Multiplication and Division of Rationals-IA
16	ANS: 2	PTS: 2	TOP:	Using Trigonometry to Find an Angle
17	ANS: 3	PTS: 2	TOP:	Undefined Rationals
18	ANS: 2	PTS: 2	TOP:	Set Theory
19	ANS: 3	PTS: 2	TOP:	Analysis of Data
20	ANS: 3	PTS: 2	TOP:	Slope
21	ANS: 2	PTS: 2	TOP:	Modeling Inequalities
22	ANS: 3	PTS: 2	TOP:	Frequency Histograms, Bar Graphs and Tables-IA
23	ANS: 4	PTS: 2	TOP:	Expressions
24	ANS: 2	PTS: 2	TOP:	Rational Expressions
25	ANS: 3	PTS: 2	TOP:	Pythagoras-IA
26	ANS: 4	PTS: 2	TOP:	Solving Rationals-IA
27	ANS: 4	PTS: 2	TOP:	Surface Area
28	ANS: 1	PTS: 2	TOP:	Simplifying Radicals-IA
29	ANS: 4	PTS: 2	TOP:	Graphing Quadratics
30	ANS: 2	PTS: 2	TOP:	Exponential Functions

31 ANS:
Ann's

PTS: 2   TOP: Using Rate

32 ANS:
$36 - 9\pi$

PTS: 2   TOP: Compositions of Polygons and Circles
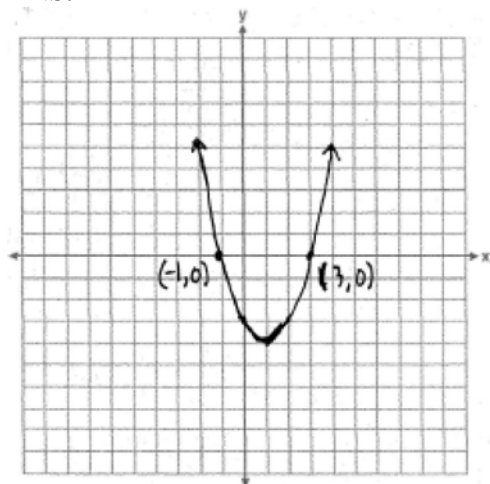
33 ANS:
$0 \le t \le 40$

PTS: 2   TOP: Set Theory

34 ANS:
$10 + 2d \geq 75$, 33

PTS: 3   TOP: Modeling Inequalities

35 ANS:
$\frac{1}{6}$, 16.67%, $13.50

PTS: 3   TOP: Percents

36 ANS:

PTS: 3   TOP: Solving Quadratics by Graphing

37 ANS:
$w(w + 15) = 54$, 3, 18

PTS: 4   TOP: Geometric Applications of Quadratics

38 ANS:
618.45, 613.44, 0.008

PTS: 4   TOP: Error

39 ANS:
315,000, 180,000, median

PTS: 4   TOP: Frequency Histograms, Bar Graphs and Tables-IA

0808ia
Answer Section

1	ANS: 4	PTS: 2	TOP:	Solving Equations
2	ANS: 2	PTS: 2	TOP:	Identifying Properties
3	ANS: 1	PTS: 2	TOP:	Modeling Inequalities
4	ANS: 3	PTS: 2	TOP:	Central Tendency
5	ANS: 4	PTS: 2	TOP:	Solving Inequalities
6	ANS: 2	PTS: 2	TOP:	Factoring Polynomials
7	ANS: 2	PTS: 2	TOP:	Graphing Functions and Relations-IA
8	ANS: 3	PTS: 2	TOP:	Transforming Formulas
9	ANS: 4	PTS: 2	TOP:	Pythagoras-IA
10	ANS: 2	PTS: 2	TOP:	Parallel and Perpendicular Lines
11	ANS: 2	PTS: 2	TOP:	Writing Linear Systems
12	ANS: 2	PTS: 2	TOP:	Quadratic-Linear Systems-IA
13	ANS: 1	PTS: 2	TOP:	Identifying the Vertex of a Quadratic Given Graph
14	ANS: 3	PTS: 2	TOP:	Using Rate
15	ANS: 2	PTS: 2	TOP:	Compositions of Polygons and Circles
16	ANS: 1	PTS: 2	TOP:	Permutations
17	ANS: 2	PTS: 2	TOP:	Geometric Applications of Quadratics
18	ANS: 3	PTS: 2	TOP:	Box-and-Whisker Plots
19	ANS: 3	PTS: 2	TOP:	Addition and Subtraction of Polynomials
20	ANS: 4	PTS: 2	TOP:	Solving Equations with Fractional Expressions
21	ANS: 4	PTS: 2	TOP:	Rational Expressions
22	ANS: 4	PTS: 2	TOP:	Scatter Plots
23	ANS: 2	PTS: 2	TOP:	Slope
24	ANS: 1	PTS: 2	TOP:	Using Trigonometry to Find an Angle
25	ANS: 4	PTS: 2	TOP:	Systems of Linear Inequalities
26	ANS: 1	PTS: 2	TOP:	Multiplication and Division of Rationals-IA
27	ANS: 4	PTS: 2	TOP:	Powers of Powers
28	ANS: 1	PTS: 2	TOP:	Error
29	ANS: 3	PTS: 2	TOP:	Using Trigonometry to Find an Angle
30	ANS: 2	PTS: 2	TOP:	Probability of Events Not Mutually Exclusive

31 ANS:
111.25

PTS: 2 TOP: Speed

32 ANS:
$$\frac{3}{8}$$

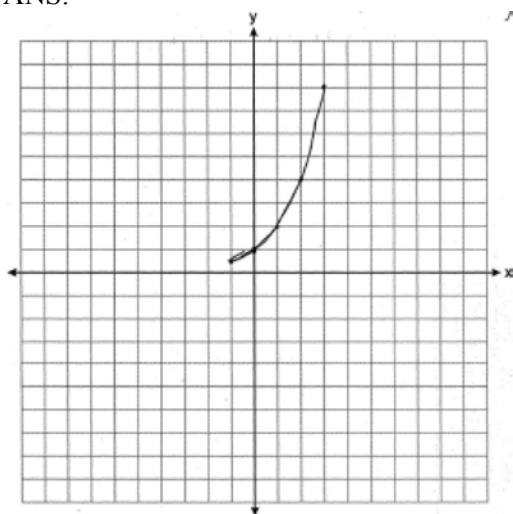PTS: 2 TOP: Probability of Independent Events

33 ANS:
{1,2,4,5,9,10,12}

PTS: 2   TOP: Set Theory

34 ANS:
$60 - 42\sqrt{5}$

PTS: 3   TOP: Operations with Radicals-IA

35 ANS:

The graph will never intersect the x-axis because 2^x is greater than zero for all values of x.

PTS: 3   TOP: Exponential Functions

36 ANS:
$y = \frac{2}{5}x + 2$

PTS: 3   TOP: Writing Linear Equations
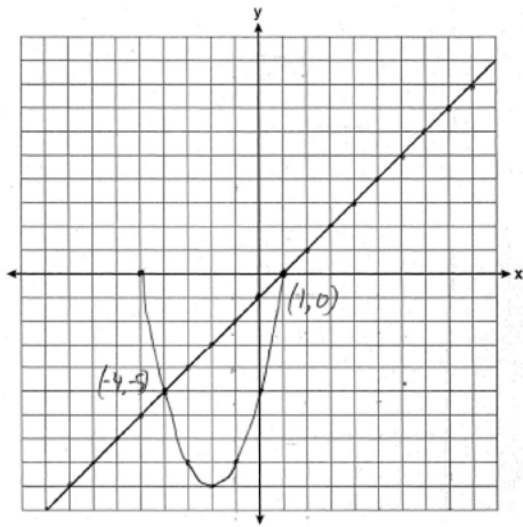
37 ANS:
$m = 50¢, p = 15¢$

PTS: 3   TOP: Writing Linear Systems

38 ANS:

Number of Days Outside

Interval	Tally	Frequency
0–1	|||	3
2–3	HHT ||	7
4–5	HHT ||	7
6–7	|||	3

Number of Days Outside

Interval	Cumulative Frequency
0–1	3
0–3	10
0–5	17
0–7	20

PTS: 4   TOP: Frequency Histograms, Bar Graphs and Tables-IA

2

39 ANS:

PTS: 4   TOP: Quadratic-Linear Systems-IA

0109ia
Answer Section

1	ANS: 3	PTS: 2	TOP:	Conversions
2	ANS: 4	PTS: 2	TOP:	Speed
3	ANS: 4	PTS: 2	TOP:	Theoretical Probability
4	ANS: 1	PTS: 2	TOP:	Modeling Inequalities
5	ANS: 1	PTS: 2	TOP:	Graphing Functions and Relations-IA
6	ANS: 3	PTS: 2	TOP:	Solving Equations with Fractional Expressions
7	ANS: 4	PTS: 2	TOP:	Central Tendency
8	ANS: 4	PTS: 2	TOP:	Exponential Functions
9	ANS: 2	PTS: 2	TOP:	Factoring the Difference of Perfect Squares-IA
10	ANS: 3	PTS: 2	TOP:	Writing Linear Equations
11	ANS: 2	PTS: 2	TOP:	Transforming Formulas
12	ANS: 3	PTS: 2	TOP:	Using Trigonometry to Find a Side
13	ANS: 2	PTS: 2	TOP:	Slope
14	ANS: 3	PTS: 2	TOP:	Solving Quadratics by Factoring
15	ANS: 2	PTS: 2	TOP:	Modeling Equations
16	ANS: 2	PTS: 2	TOP:	Identifying the Vertex of a Quadratic Given Graph
17	ANS: 3	PTS: 2	TOP:	Set Theory
18	ANS: 1	PTS: 2	TOP:	Solving Rationals-IA
19	ANS: 2	PTS: 2	TOP:	Basic Trigonometric Ratios
20	ANS: 3	PTS: 2	TOP:	Simplifying Radicals-IA
21	ANS: 2	PTS: 2	TOP:	Addition and Subtraction of Rationals-IA
22	ANS: 2	PTS: 2	TOP:	Quadratic-Linear Systems-IA
23	ANS: 1	PTS: 2	TOP:	Analysis of Data
24	ANS: 4	PTS: 2	TOP:	Geometric Applications of Quadratics
25	ANS: 2	PTS: 2	TOP:	Undefined Rationals
26	ANS: 1	PTS: 2	TOP:	Parallel and Perpendicular Lines-IA
27	ANS: 4	PTS: 2	TOP:	Operations with Scientific Notation
28	ANS: 1	PTS: 2	TOP:	Probability of Independent Events
29	ANS: 4	PTS: 2	TOP:	Box-and-Whisker Plots
30	ANS: 4	PTS: 2	TOP:	Defining Functions-IA

31 ANS:
50

PTS: 2 TOP: Compositions of Polygons and Circles

32 ANS:

$$\frac{3k^2 m^6}{4}$$

PTS: 2 TOP: Division of Powers

33 ANS:
$d = 6.25h$, 250

PTS: 2 TOP: Direct Variation

34 ANS:
1,512, 1,551.25, 0.025

PTS: 3 TOP: Error

35 ANS:
$$\frac{3}{4x - 8}$$

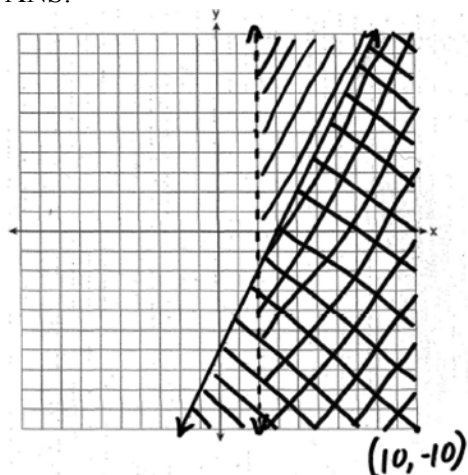PTS: 3 TOP: Multiplication and Division of Rationals-IA

36 ANS:
$$\frac{38}{\pi}, 2$$

PTS: 3 TOP: Volume-IA

37 ANS:
$(-2,5)$

PTS: 4 TOP: Solving Linear Systems

38 ANS:

$(10, -10)$

PTS: 4 TOP: Systems of Linear Inequalities

39 ANS:
(H,F,M), (H,F,J), (H,F,S), (H,A,M), (H,A,J), (H,A,S), (C,F,M), (C,F,J), (C,F,S), (C,A,M), (C,A,J), (C,A,S), (T,F,M), (T,F,J), (T,F,S), (T,A,M), (T,A,J), (T,A,S). There are 18 different kids' meals, 12 do not include juice and 6 include chicken nuggets.

PTS: 4 TOP: Sample Space

0609ia
Answer Section

1 ANS: 4   PTS: 2   TOP: Speed
2 ANS: 4   PTS: 2   TOP: Roots of Quadratics-IA
3 ANS: 1   PTS: 2   TOP: Division of Powers
4 ANS: 2   PTS: 2   TOP: Expressions
5 ANS: 3   PTS: 2   TOP: Analysis of Data
6 ANS: 4   PTS: 2   TOP: Modeling Inequalities
7 ANS: 1   PTS: 2   TOP: Solving Equations with Fractional Expressions
8 ANS: 2   PTS: 2   TOP: Empirical Probability
9 ANS: 3   PTS: 2   TOP: Pythagoras-IA
10 ANS: 2   PTS: 2   TOP: Simplifying Radicals-IA
11 ANS: 4   PTS: 2   TOP: Conversions
12 ANS: 2   PTS: 2   TOP: Modeling Linear Systems
13 ANS: 3   PTS: 2   TOP: Transforming Formulas
14 ANS: 1   PTS: 2   TOP: Interpreting Solutions
15 ANS: 3   PTS: 2   TOP: Box-and-Whisker Plots
16 ANS: 4   PTS: 2   TOP: Undefined Rationals
17 ANS: 1   PTS: 2   TOP: Writing Linear Systems
18 ANS: 1   PTS: 2   TOP: Identifying the Vertex of a Quadratic Given Equation
19 ANS: 3   PTS: 2   TOP: Defining Functions-IA
20 ANS: 1   PTS: 2   TOP: Linear Inequalities
21 ANS: 2   PTS: 2   TOP: Rational Expressions
22 ANS: 1   PTS: 2   TOP: Writing Linear Equations
23 ANS: 2   PTS: 2   TOP: Addition and Subtraction of Polynomials
24 ANS: 3   PTS: 2   TOP: Solving Quadratics by Graphing
25 ANS: 2   PTS: 2   TOP: Solving Linear Systems
26 ANS: 3   PTS: 2   TOP: Properties of Reals
27 ANS: 4   PTS: 2   TOP: Operations with Scientific Notation
28 ANS: 2   PTS: 2   TOP: Error
29 ANS: 2   PTS: 2   TOP: Addition and Subtraction of Rationals-IA
30 ANS: 4   PTS: 2   TOP: Set Theory
31 ANS:
   60

   PTS: 2   TOP: Permutations
32 ANS:
   $4x(x + 3)(x - 3)$

   PTS: 2   TOP: Factoring the Difference of Perfect Squares-IA

33 ANS:
$\dfrac{1}{8}$

    PTS: 2   TOP: Conditional Probability

34 ANS:
56

    PTS: 3   TOP: Compositions of Polygons and Circles

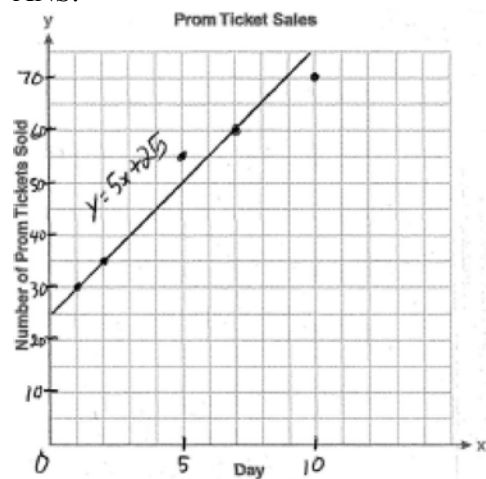35 ANS:
5,583.86

    PTS: 3   TOP: Exponential Functions

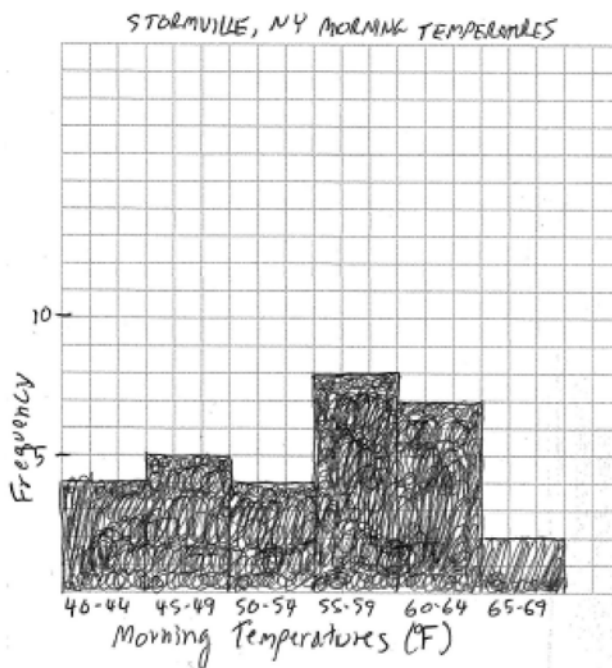36 ANS:

    PTS: 3   TOP: Scatter Plots

37 ANS:
39, 63

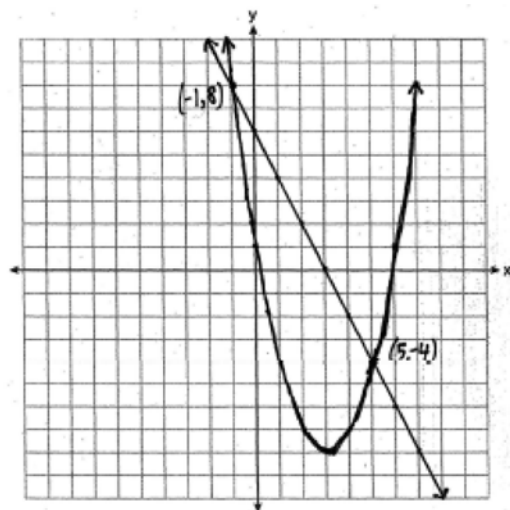   PTS: 4   TOP: Using Trigonometry to Find a Side

38 ANS:

STORMVILLE, NY MORNING TEMPERATURES

Interval	Tally	Frequency
40–44	IIII	4
45–49	HT	5
50–54	IIII	4
55–59	HT III	8
60–64	HT II	7
65–69	II	2

PTS: 4   TOP: Frequency Histograms, Bar Graphs and Tables-IA

39 ANS:

PTS: 4   TOP: Quadratic-Linear Systems-IA

0809ia
Answer Section

1	ANS:	2	PTS:	2	TOP:	Modeling Equations
2	ANS:	1	PTS:	2	TOP:	Factoring the Difference of Perfect Squares
3	ANS:	4	PTS:	2	TOP:	Multiplication of Powers
4	ANS:	1	PTS:	2	TOP:	Modeling Inequalities
5	ANS:	3	PTS:	2	TOP:	Conditional Probability
6	ANS:	1	PTS:	2	TOP:	Pythagoras-IA
7	ANS:	3	PTS:	2	TOP:	Theoretical Probability
8	ANS:	3	PTS:	2	TOP:	Analysis of Data
9	ANS:	2	PTS:	2	TOP:	Solving Equations with Fractional Expressions
10	ANS:	4	PTS:	2	TOP:	Analysis of Data
11	ANS:	1	PTS:	2	TOP:	Parallel and Perpendicular Lines
12	ANS:	4	PTS:	2	TOP:	Set Theory
13	ANS:	4	PTS:	2	TOP:	Interpreting Solutions
14	ANS:	2	PTS:	2	TOP:	Using Trigonometry to Find a Side
15	ANS:	1	PTS:	2	TOP:	Slope
16	ANS:	2	PTS:	2	TOP:	Solving Quadratics by Graphing
17	ANS:	2	PTS:	2	TOP:	Addition and Subtraction of Rationals-IA
18	ANS:	1	PTS:	2	TOP:	Undefined Rationals
19	ANS:	3	PTS:	2	TOP:	Defining Functions-IA
20	ANS:	1	PTS:	2	TOP:	Solving Linear Systems
21	ANS:	3	PTS:	2	TOP:	Solving Quadratics by Factoring
22	ANS:	2	PTS:	2	TOP:	Simplifying Radicals-IA
23	ANS:	3	PTS:	2	TOP:	Absolute Value
24	ANS:	1	PTS:	2	TOP:	Compositions of Polygons and Circles-IA
25	ANS:	3	PTS:	2	TOP:	Identifying the Equation of a Graph
26	ANS:	2	PTS:	2	TOP:	Error
27	ANS:	4	PTS:	2	TOP:	Writing Linear Equations
28	ANS:	4	PTS:	2	TOP:	Modeling Equations
29	ANS:	3	PTS:	2	TOP:	Exponential Functions
30	ANS:	2	PTS:	2	TOP:	Scatter Plots

31 ANS:
No, problems 1, 3 and 4 are expressions

PTS: 2   TOP: Expressions
32 ANS:
5,112

PTS: 2   TOP: Volume-IA

1

33 ANS:

$$\frac{3}{8}$$

PTS: 2   TOP: Sample Space

34 ANS:

$(-2, 11)$

PTS: 3   TOP: Identifying the Vertex of a Quadratic Given Equation

35 ANS:

30.4%; no, 23.3%

PTS: 3   TOP: Percents

36 ANS:

Greg's rate of 5.5 is faster than Dave's rate of 5.3
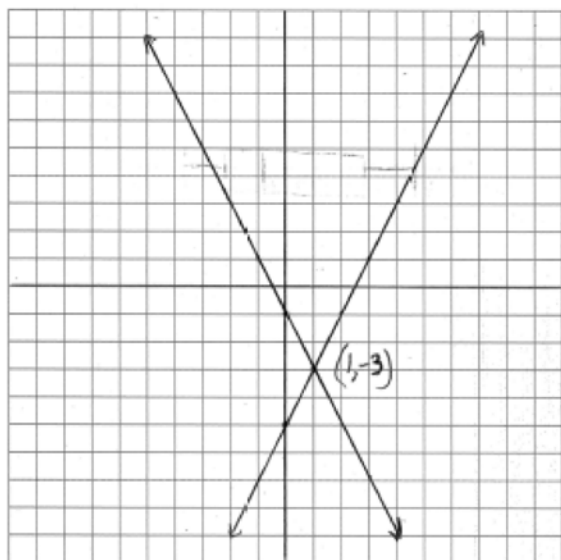
PTS: 3   TOP: Speed

37 ANS:

$$\frac{x-7}{3x}$$

PTS: 4   TOP: Multiplication and Division of Rationals-IA
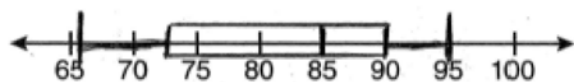
38 ANS:

PTS: 4   TOP: Solving Linear Systems

39 ANS:

PTS: 4   TOP: Box-and-Whisker Plots

2