

# JEFFERSON MATH PROJECT REGENTS AT RANDOM

The NY Integrated Algebra Regents Exams  
Fall 2007-January 2010  
(Answer Key)

[www.jmap.org](http://www.jmap.org)

*Dear Sir*

*I have to acknolege the receipt 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 indispensable 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.

## Integrated Algebra Regents at Random Answer Section

1 ANS:

$$39, 63. \tan 52 = \frac{50}{x}, \sin 52 = \frac{50}{x}$$

$$x \approx 39 \quad x \approx 63$$

PTS: 4 REF: 060937ia STA: A.A.44 TOP: Using Trigonometry to Find a Side

2 ANS: 4 PTS: 2 REF: 080825ia STA: A.A.40

TOP: Systems of Linear Inequalities

3 ANS:

$$53. \sin A = \frac{16}{20}$$

$$A \approx 53$$

PTS: 2 REF: 011032ia STA: A.A.43 TOP: Using Trigonometry to Find an Angle

4 ANS: 3

The other situations are quantitative.

PTS: 2 REF: 060905ia STA: A.S.1 TOP: Analysis of Data

5 ANS: 4 PTS: 2 REF: 011016ia STA: A.A.23

TOP: Transforming Formulas

6 ANS: 2

$$\sqrt{32} = \sqrt{16}\sqrt{2} = 4\sqrt{2}$$

PTS: 2 REF: 060910ia STA: A.N.2 TOP: Simplifying Radicals

7 ANS:

6, 8, 10. Three consecutive even integers are  $x$ ,  $x + 2$  and  $x + 4$ .  $(x + 2)(x + 4) = 10x + 20$ 

$$x^2 + 6x + 8 = 10x + 20$$

$$x^2 - 4x - 12 = 0$$

$$(x - 6)(x + 2) = 0$$

$$x = 6$$

PTS: 4 REF: 011039ia STA: A.A.8 TOP: Writing Quadratics

8 ANS: 3

$$a + ar = b + r$$

$$a(1 + r) = b + r$$

$$a = \frac{b + r}{1 + r}$$

PTS: 2 REF: 060913ia STA: A.A.23 TOP: Transforming Formulas

9 ANS: 2

$$R = 0.5^{d-1}$$

PTS: 2 REF: 011006ia STA: A.A.9 TOP: Exponential Functions

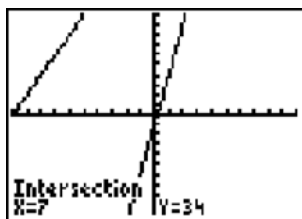
10 ANS: 1 PTS: 2 REF: 060920ia STA: A.G.6

TOP: Linear Inequalities

11 ANS: 4 PTS: 2 REF: 011025ia STA: A.A.17

TOP: Addition and Subtraction of Rationals

12 ANS: 4



$$5p - 1 = 2p + 20$$

$$3p = 21$$

$$p = 7$$

PTS: 2 REF: 080801ia STA: A.A.22 TOP: Solving Equations

13 ANS: 4

In (4), each element in the domain corresponds to a unique element in the range.

PTS: 2 REF: 011018ia STA: A.G.3 TOP: Defining Functions

14 ANS: 1

$$y = mx + b$$

$$-6 = (-3)(4) + b$$

$$b = 6$$

PTS: 2 REF: 060922ia STA: A.A.34 TOP: Writing Linear Equations

15 ANS: 3

$$\cos A = \frac{\text{adjacent}}{\text{hypotenuse}} = \frac{15}{17}$$

PTS: 2 REF: 011008ia STA: A.A.43 TOP: Using Trigonometry to Find an Angle

16 ANS: 2 PTS: 2 REF: 011002ia STA: A.S.20

TOP: Theoretical Probability

17 ANS: 2

$$L + S = 47$$

$$L - S = 15$$

$$2L = 62$$

$$L = 31$$

PTS: 2 REF: 060912ia STA: A.A.7 TOP: Modeling Linear Systems

18 ANS: 3  
The value of the upper quartile is the last vertical line of the box.

PTS: 2 REF: 060915ia STA: A.S.6 TOP: Box-and-Whisker Plots

19 ANS:  
60.  ${}_5P_3 = 60$

PTS: 2 REF: 060931ia STA: A.N.8 TOP: Permutations

20 ANS: 4  
 $16^2 + b^2 = 34^2$   
 $b^2 = 900$   
 $b = 30$

PTS: 2 REF: 080809ia STA: A.A.45 TOP: Pythagorean Theorem

21 ANS:  
111.25.  $\frac{\text{distance}}{\text{time}} = \frac{89}{0.8} = 111.25$

PTS: 2 REF: 080831ia STA: A.M.1 TOP: Speed

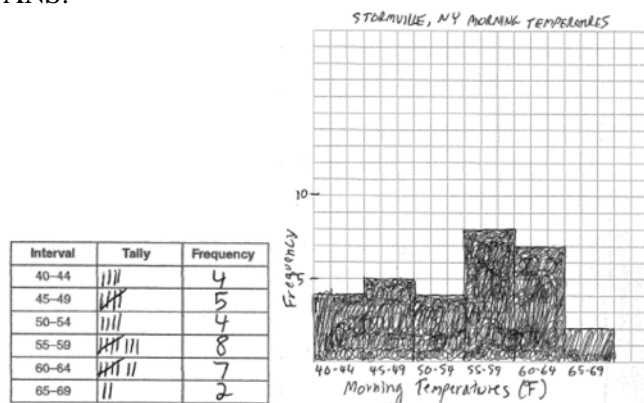
22 ANS: 2  
Debbie failed to distribute the 3 properly.

PTS: 2 REF: 011009ia STA: A.A.22 TOP: Solving Equations

23 ANS: 2  
The events are not mutually exclusive:  $P(\text{prime}) = \frac{3}{6}$ ,  $P(\text{even}) = \frac{3}{6}$ ,  $P(\text{prime AND even}) = \frac{1}{6}$   
 $P(\text{prime OR even}) = \frac{3}{6} + \frac{3}{6} - \frac{1}{6} = \frac{5}{6}$

PTS: 2 REF: 080830ia STA: A.S.23  
TOP: Probability of Events Not Mutually Exclusive

24 ANS:



PTS: 4 REF: 060938ia STA: A.S.5  
TOP: Frequency Histograms, Bar Graphs and Tables

25 ANS: 4

$$\frac{344 \text{ m}}{\text{sec}} \times \frac{60 \text{ sec}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}} = 1,238,400 \frac{\text{m}}{\text{hr}}$$

PTS: 2 REF: 060911ia STA: A.M.2 TOP: Conversions

26 ANS: 4 PTS: 2 REF: 060916ia STA: A.A.15

TOP: Undefined Rationals

27 ANS: 4 PTS: 2 REF: 060927ia STA: A.N.4

TOP: Operations with Scientific Notation

28 ANS: 1

$$x = \frac{-b}{2a} = \frac{-(-16)}{2(1)} = 8. \quad y = (8)^2 - 16(8) + 63 = -1$$

PTS: 2 REF: 060918ia STA: A.A.41

TOP: Identifying the Vertex of a Quadratic Given Equation

29 ANS: 4



PTS: 2 REF: 080822ia STA: A.S.8 TOP: Scatter Plots

30 ANS: 2 PTS: 2 REF: 060923ia STA: A.A.13

TOP: Addition and Subtraction of Polynomials

31 ANS: 3 PTS: 2 REF: 060919ia STA: A.G.3

TOP: Defining Functions

32 ANS: 3

$$3ax + b = c$$

$$3ax = c - b$$

$$x = \frac{c - b}{3a}$$

PTS: 2 REF: 080808ia STA: A.A.23 TOP: Transforming Formulas

33 ANS: 2 PTS: 2 REF: 060908ia STA: A.S.21

TOP: Empirical Probability

34 ANS: 3

$$m = \frac{7-3}{-3-3} = \frac{4}{-6} = -\frac{2}{3} \quad y = mx + b$$

$$3 = -\frac{2}{3}(3) + b$$

$$3 = -2 + b$$

$$5 = b$$

PTS: 2 REF: 011013ia STA: A.A.35 TOP: Writing Linear Equations

35 ANS: 3

$$0.75 \text{ hours} = 45 \text{ minutes. } \frac{120}{1} = \frac{x}{45}$$

$$x = 5400$$

PTS: 2 REF: 080814ia STA: A.M.1 TOP: Using Rate

36 ANS: 2 PTS: 2 REF: 011012ia STA: A.G.9

TOP: Quadratic-Linear Systems

37 ANS:

$$0.102. \frac{(5.3 \times 8.2 \times 4.1) - (5 \times 8 \times 4)}{5.3 \times 8.2 \times 4.1} = \frac{178.16 - 160}{178.16} = 0.102$$

PTS: 3 REF: 011036ia STA: A.M.3 TOP: Error

38 ANS:

$\frac{1}{8}$ . After the English and social studies books are taken, 8 books are left and 1 is an English book.

PTS: 2 REF: 060933ia STA: A.S.18 TOP: Conditional Probability

39 ANS: 4

$$-4x + 2 > 10$$

$$-4x > 8$$

$$x < -2$$

PTS: 2 REF: 080805ia STA: A.A.21 TOP: Solving Inequalities

40 ANS: 2 PTS: 2 REF: 011027ia STA: A.A.3

TOP: Expressions

41 ANS: 1

$$so = f + 60 \quad j = 2f - 50 \quad se = 3f. \quad f + (f + 60) + (2f - 50) + 3f = 1424$$

$$7f + 10 = 1424$$

$$f = 202$$

PTS: 2 REF: 060917ia STA: A.A.7 TOP: Writing Linear Systems

42 ANS: 4 PTS: 2 REF: 060930ia STA: A.A.29

TOP: Set Theory

43 ANS:

$$\frac{3}{8} \cdot P(s_1 < 4) \times P(s_2 = \text{back}) = \frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$$

PTS: 2 REF: 080832ia STA: A.S.23 TOP: Probability of Independent Events

44 ANS:

$$y = \frac{2}{5}x + 2. \quad m = \frac{4-0}{5-(-5)} = \frac{2}{5}. \quad y = mx + b \quad .$$

$$4 = \frac{2}{5}(5) + b$$

$$b = 2$$

PTS: 3 REF: 080836ia STA: A.A.35 TOP: Writing Linear Equations

45 ANS: 2

$$l(l-5) = 24$$

$$l^2 - 5l - 24 = 0$$

$$(l-8)(l+3) = 0$$

$$l = 8$$

PTS: 2 REF: 080817ia STA: A.A.8 TOP: Geometric Applications of Quadratics

46 ANS: 3 PTS: 2 REF: 060924ia STA: A.G.8

TOP: Solving Quadratics by Graphing

47 ANS:

$$4x(x+3)(x-3). \quad 4x^3 - 36x = 4x(x^2 - 9) = 4x(x+3)(x-3)$$

PTS: 2 REF: 060932ia STA: A.A.19

TOP: Factoring the Difference of Perfect Squares

48 ANS: 3

The value of the third quartile is the last vertical line of the box.

PTS: 2 REF: 080818ia STA: A.S.6 TOP: Box-and-Whisker Plots

49 ANS: 3

$$\frac{12x^3 - 6x^2 + 2x}{2x} = \frac{2x(6x^2 - 3x + 1)}{2x} = 6x^2 - 3x + 1$$

PTS: 2 REF: 011011ia STA: A.A.14 TOP: Rational Expressions

50 ANS: 2 PTS: 2 REF: 011015ia STA: A.G.10

TOP: Identifying the Vertex of a Quadratic Given Graph

51 ANS: 3 PTS: 2 REF: 060926ia STA: A.N.1

TOP: Properties of Reals

52 ANS:

$$m = 50¢, p = 15¢. \quad 3m + 2p = 1.80. \quad 9m + 6p = 5.40 \quad . \quad 4(.50) + 6p = 2.90$$

$$4m + 6p = 2.90 \quad 4m + 6p = 2.90 \quad 6p = .90$$

$$5m = 2.50 \quad p = \$0.15$$

$$m = \$0.50$$

PTS: 3 REF: 080837ia STA: A.A.35 TOP: Writing Linear Systems

53 ANS: 3

$$\sin A = \frac{10}{16} \quad B = 180 - (90 + 38.7) = 51.3$$

$$A \approx 38.7$$

PTS: 2 REF: 080829ia STA: A.A.43 TOP: Using Trigonometry to Find an Angle

54 ANS:

$$\text{orchestra: } \frac{3}{26} > \frac{4}{36}$$

PTS: 2 REF: 011033ia STA: A.S.22 TOP: Theoretical Probability

55 ANS: 4

$$A(-3,4) \text{ and } B(5,8). \quad m = \frac{4-8}{-3-5} = \frac{-4}{-8} = \frac{1}{2}$$

PTS: 2 REF: 011007ia STA: A.A.33 TOP: Slope

56 ANS: 3

The age of a child does not cause the number of siblings he has, or vice versa.

PTS: 2 REF: 011030ia STA: A.S.14 TOP: Analysis of Data

57 ANS:

$$-2, 3. \quad x^2 - x = 6$$

$$x^2 - x - 6 = 0$$

$$(x-3)(x+2) = 0$$

$$x = 3 \text{ or } -2$$

PTS: 3 REF: 011034ia STA: A.A.27 TOP: Solving Quadratics by Factoring

58 ANS: 3

Frequency is not a variable.

PTS: 2 REF: 011014ia STA: A.S.2 TOP: Analysis of Data

59 ANS: 2

PTS: 2

REF: 011005ia

STA: A.A.5

TOP: Modeling Inequalities

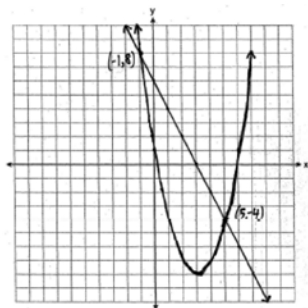
60 ANS:

$$60 - 42\sqrt{5}. \quad 3\sqrt{20}(2\sqrt{5} - 7) = 6\sqrt{100} - 21\sqrt{20} = 60 - 21\sqrt{4}\sqrt{5} = 60 - 42\sqrt{5}$$

PTS: 3 REF: 080834ia STA: A.N.3 TOP: Operations with Radicals



61 ANS:



PTS: 4 REF: 060939ia STA: A.G.9 TOP: Quadratic-Linear Systems

62 ANS: 2 PTS: 2 REF: 080823ia STA: A.A.32  
TOP: Slope63 ANS: 2 PTS: 2 REF: 011019ia STA: A.S.12  
TOP: Scatter Plots64 ANS: 3 PTS: 2 REF: 011017ia STA: A.G.5  
TOP: Graphing Quadratics65 ANS: 4 PTS: 2 REF: 011020ia STA: A.A.12  
TOP: Multiplication of Powers

66 ANS: 1

$$\frac{4}{3}x + 5 < 17$$

$$\frac{4}{3}x < 12$$

$$4x < 36$$

$$x < 9$$

PTS: 2 REF: 060914ia STA: A.A.21 TOP: Interpreting Solutions

67 ANS: 4  

$$SA = 2lw + 2hw + 2lh = 2(2)(3) + 2(4)(3) + 2(2)(4) = 52$$

PTS: 2 REF: 011029ia STA: A.G.2 TOP: Surface Area

68 ANS: 3  

$$3^2 + 5^2 = x^2$$

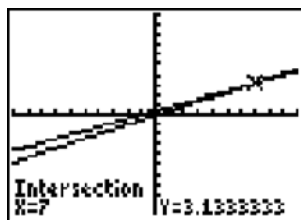
$$34 = x^2$$

$$\sqrt{34} = x$$

PTS: 2 REF: 060909ia STA: A.A.45 TOP: Pythagorean Theorem

69 ANS: 1 PTS: 2 REF: 011004ia STA: A.A.31  
TOP: Set Theory

70 ANS: 4



$$\frac{2x}{5} + \frac{1}{3} = \frac{7x-2}{15}$$

$$\frac{(2x \times 3) + (5 \times 1)}{5 \times 3} = \frac{7x-2}{15}$$

$$\frac{6x+5}{15} = \frac{7x-2}{15}$$

$$6x+5 = 7x-2$$

$$x = 7$$

PTS: 2 REF: 080820ia STA: A.A.26

TOP: Solving Equations with Fractional Expressions

71 ANS:

56. If the circumference of circle  $O$  is  $16\pi$  inches, the diameter,  $\overline{AD}$ , is 16 inches and the length of  $\overline{BC}$  is 12 inches  $\frac{3}{4} \times 16$ . The area of trapezoid  $ABCD$  is  $\frac{1}{2} \times 4(12 + 16) = 56$ .

PTS: 3 REF: 060934ia STA: A.G.1 TOP: Compositions of Polygons and Circles

72 ANS: 2

If the car can travel 75 miles on 4 gallons, it can travel 300 miles on 16 gallons.  $\frac{75}{4} = \frac{x}{16}$ .

$$x = 300$$

PTS: 2 REF: 080807ia STA: A.G.4 TOP: Graphing Functions and Relations

73 ANS: 3 PTS: 2 REF: 080819ia STA: A.A.13

TOP: Addition and Subtraction of Polynomials

74 ANS: 1 PTS: 2 REF: 080813ia STA: A.G.10

TOP: Identifying the Vertex of a Quadratic Given Graph

75 ANS: 4 PTS: 2 REF: 080827ia STA: A.A.12

TOP: Powers of Powers

76 ANS: 1

$${}_4P_4 = 4 \times 3 \times 2 \times 1 = 24$$

PTS: 2 REF: 080816ia STA: A.N.8 TOP: Permutations

77 ANS: 4

$$6\sqrt{50} + 6\sqrt{2} = 6\sqrt{25} \sqrt{2} + 6\sqrt{2} = 30\sqrt{2} + 6\sqrt{2} = 36\sqrt{2}$$

PTS: 2 REF: 011024ia STA: A.N.3 TOP: Operations with Radicals

78 ANS: 2 PTS: 2 REF: 080802ia STA: A.N.1

TOP: Identifying Properties

79 ANS: 1

$$-|a-b| = -|7-(-3)| = -|-10| = -10$$

PTS: 2

REF: 011010ia

STA: A.N.6

TOP: Absolute Value

80 ANS: 1

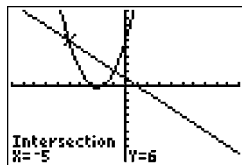
PTS: 2

REF: 060903ia

STA: A.A.12

TOP: Division of Powers

81 ANS: 2



$$x^2 + 5x + 6 = -x + 1 \quad y = -x + 1$$

$$x^2 + 6x + 5 = 0 \quad = -(-5) + 1$$

$$(x+5)(x+1) = 0 \quad = 6$$

$$x = -5 \text{ or } -1$$

PTS: 2

REF: 080812ia

STA: A.A.11

TOP: Quadratic-Linear Systems

82 ANS: 1

PTS: 2

REF: 011001ia

STA: A.S.6

TOP: Box-and-Whisker Plots

83 ANS:

16. 12 feet equals 4 yards.  $4 \times 4 = 16$ .

PTS: 2

REF: 011031ia

STA: A.M.2

TOP: Conversions

84 ANS: 1

PTS: 2

REF: 080803ia

STA: A.A.4

TOP: Modeling Inequalities

85 ANS: 2

$$\frac{x^2 - 2x - 15}{x^2 + 3x} = \frac{(x-5)(x+3)}{x(x+3)} = \frac{x-5}{x}$$

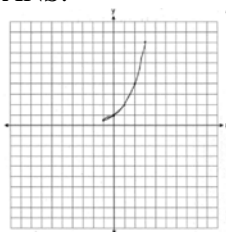
PTS: 2

REF: 060921ia

STA: A.A.16

TOP: Rational Expressions

86 ANS:

. The graph will never intersect the  $x$ -axis as  $2^x > 0$  for all values of  $x$ .

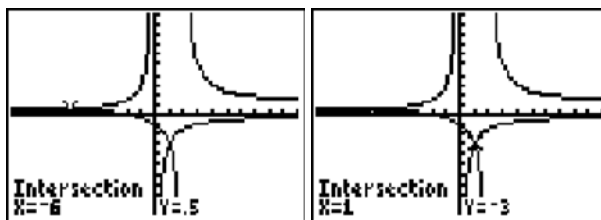
PTS: 3

REF: 080835ia

STA: A.G.4

TOP: Exponential Functions

87 ANS: 4



$$\frac{x+2}{x-2} = \frac{-3}{x}$$

$$x(x+2) = -3(x-2)$$

$$x^2 + 2x = -3x + 6$$

$$x^2 + 5x - 6 = 0$$

$$(x+6)(x-1) = 0$$

$$x = -6 \text{ or } 1$$

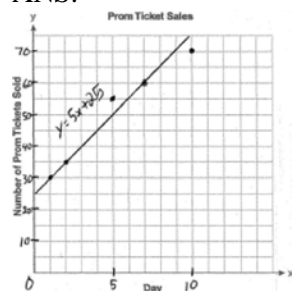
PTS: 2

REF: 011028ia

STA: A.A.26

TOP: Solving Rationals

88 ANS:



PTS: 3

REF: 060936ia

STA: A.S.8

TOP: Scatter Plots

89 ANS: 2

The volume of the cube using Ezra's measurements is 8 ( $2^3$ ). The actual volume is 9.261 ( $2.1^3$ ). The relative error is  $\left| \frac{9.261 - 8}{9.261} \right| \approx 0.14$ .

PTS: 2

REF: 060928ia

STA: A.M.3

TOP: Error

90 ANS: 1

$$\frac{4x}{x-1} \cdot \frac{x^2-1}{3x+3} = \frac{4x}{x-1} \cdot \frac{(x+1)(x-1)}{3(x+1)} = \frac{4x}{3}$$

PTS: 2

REF: 080826ia

STA: A.A.18

TOP: Multiplication and Division of Rationals

91 ANS: 2

$$s + o = 126, s + 2s = 126$$

$$o = 2s \quad s = 42$$

PTS: 2

REF: 080811ia

STA: A.A.7

TOP: Writing Linear Systems

92 ANS: 2  
 $x + 2y = 9$

$$x - y = 3$$

$$3y = 6$$

$$y = 2$$

PTS: 2 REF: 060925ia STA: A.A.10 TOP: Solving Linear Systems

93 ANS: 2  
 $1P + 2C = 5$

$$1P + 4C = 6$$

$$2C = 1$$

$$C = 0.5$$

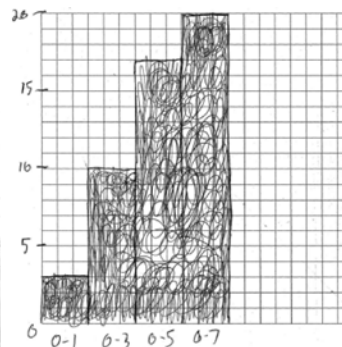
PTS: 2 REF: 011003ia STA: A.A.7 TOP: Writing Linear Systems

94 ANS:

Interval	Tally	Frequency
0-1		3
2-3		7
4-5		7
6-7		3

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



PTS: 4 REF: 080838ia STA: A.S.5  
 TOP: Frequency Histograms, Bar Graphs and Tables

95 ANS: 4  

$$\frac{25x - 125}{x^2 - 25} = \frac{25(x - 5)}{(x + 5)(x - 5)} = \frac{25}{x + 5}$$

PTS: 2 REF: 080821ia STA: A.A.16 TOP: Rational Expressions

96 ANS: 2  

$$2x^2 + 10x - 12 = 2(x^2 + 5x - 6) = 2(x + 6)(x - 1)$$

PTS: 2 REF: 080806ia STA: A.A.20 TOP: Factoring Polynomials

97 ANS:  
 81.3, 80, both increase

PTS: 3 REF: 011035ia STA: A.S.16 TOP: Central Tendency

98 ANS: 2 PTS: 2 REF: 060904ia STA: A.A.1  
 TOP: Expressions

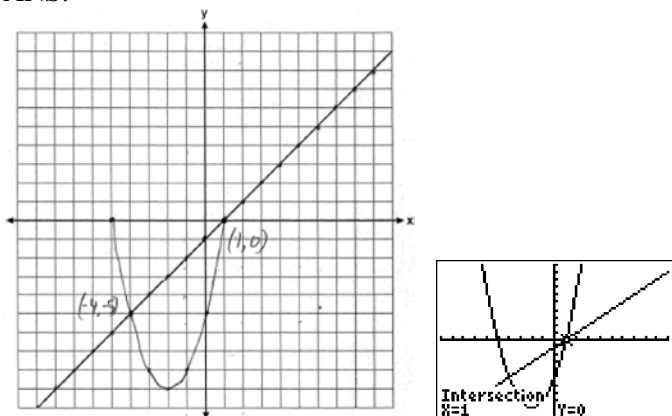
99 ANS: 3  
mean = 6, median = 6 and mode = 7

PTS: 2 REF: 080804ia STA: A.S.4 TOP: Central Tendency

100 ANS: 1  
 $4y - 2x = 0$   
 $4(-1) - 2(-2) = 0$   
 $-4 + 4 = 0$

PTS: 2 REF: 011021ia STA: A.A.39 TOP: Identifying Points on a Line

101 ANS:



PTS: 4 REF: 080839ia STA: A.G.9 TOP: Quadratic-Linear Systems

102 ANS:  
 $5,583.86. A = P(1 + R)^t = 5000(1 + 0.0375)^3 \approx 5583.86$

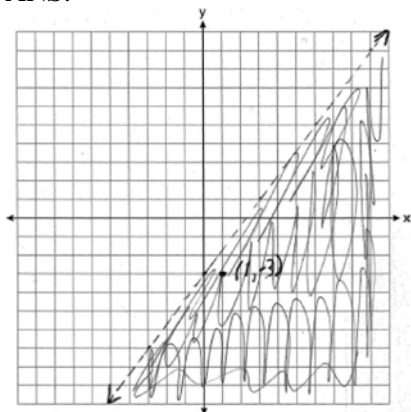
PTS: 3 REF: 060935ia STA: A.A.9 TOP: Exponential Functions

103 ANS: 4 PTS: 2 REF: 060906ia STA: A.A.4  
TOP: Modeling Inequalities

104 ANS:  
 $15,600,000, 4,368,000. 10 \times 10 \times 10 \times 26 \times 25 \times 24 = 15,600,000. 10 \times 9 \times 8 \times 26 \times 25 \times 24 = 11,232,000.$   
 $15,600,000 - 11,232,000 = 4,368,000.$

PTS: 4 REF: 011037ia STA: A.N.8 TOP: Permutations

105 ANS:



$(1, -3)$  is in the solution set.  $4(1) - 3(-3) > 9$

$$4 + 9 > 9$$

PTS: 4      REF: 011038ia      STA: A.G.6      TOP: Linear Inequalities

106 ANS: 1

The slope of  $2x - 4y = 16$  is  $\frac{-A}{B} = \frac{-2}{-4} = \frac{1}{2}$

PTS: 2      REF: 011026ia      STA: A.A.38      TOP: Parallel and Perpendicular Lines

107 ANS: 1      PTS: 2      REF: 080824ia      STA: A.A.43

TOP: Using Trigonometry to Find an Angle

108 ANS: 2      PTS: 2      REF: 011023ia      STA: A.A.40

TOP: Systems of Linear Inequalities

109 ANS: 2      PTS: 2      REF: 011022ia      STA: A.A.19

TOP: Factoring the Difference of Perfect Squares

110 ANS: 2      PTS: 2      REF: 080815ia      STA: A.G.1

TOP: Compositions of Polygons and Circles

111 ANS: 2      PTS: 2      REF: 080810ia      STA: A.A.36

TOP: Parallel and Perpendicular Lines

112 ANS: 2

$$\frac{6}{4a} - \frac{2}{3a} = \frac{18a - 8a}{12a^2} = \frac{10a}{12a^2} = \frac{5}{6a}$$

PTS: 2      REF: 060929ia      STA: A.A.17      TOP: Addition and Subtraction of Rationals

113 ANS: 4

$$\frac{5}{45} = \frac{8}{x}$$

$$5x = 360$$

$$x = 72$$

PTS: 2      REF: 060901ia      STA: A.M.1      TOP: Speed

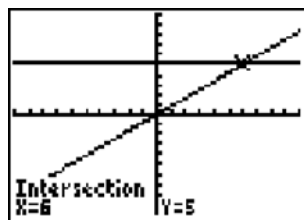
114 ANS: 1

$$\frac{(2x \times 6) + (3 \times x)}{3 \times 6} = 5$$

$$\frac{12x + 3x}{18} = 5$$

$$15x = 90$$

$$x = 6$$



PTS: 2 REF: 060907ia STA: A.A.25  
TOP: Solving Equations with Fractional Expressions

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

PTS: 2 REF: 080833ia STA: A.A.30 TOP: Set Theory

116 ANS: 1

$$\left| \frac{289 - 282}{289} \right| \approx 0.024$$

PTS: 2 REF: 080828ia STA: A.M.3 TOP: Error

117 ANS: 4

$$x^2 - 7x + 6 = 0$$

$$(x - 6)(x - 1) = 0$$

$$x = 6 \quad x = 1$$

PTS: 2 REF: 060902ia STA: A.A.28 TOP: Roots of Quadratics



## Integrated Algebra Regents at Random Answer Section

118 ANS: 1

$$x - 2y = 1$$

$$x + 4y = 7$$

$$-6y = -6$$

$$y = 1$$

PTS: 2

REF: 080920ia

STA: A.A.10

TOP: Solving Linear Systems

119 ANS: 2

$$\sin U = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{15}{17}$$

PTS: 2

REF: 010919ia

STA: A.A.42

TOP: Basic Trigonometric Ratios

120 ANS: 3

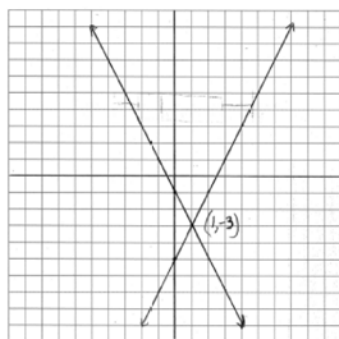
PTS: 2

REF: 010910ia

STA: A.A.35

TOP: Writing Linear Equations

121 ANS:



PTS: 4

REF: 080938ia

STA: A.G.7

TOP: Solving Linear Systems

122 ANS: 3

$$x^2 - 10x + 21 = 0$$

$$(x - 7)(x - 3) = 0$$

$$x = 7 \quad x = 3$$

PTS: 2

REF: 010914ia

STA: A.A.28

TOP: Solving Quadratics by Factoring

123 ANS: 1

PTS: 2

REF: 060811ia

STA: A.G.10

TOP: Identifying the Vertex of a Quadratic Given Graph

124 ANS: 1

Everyone eats, can shop in malls and wear clothes. People who work in a sporting goods store probably watch more sports television than most.

PTS: 2

REF: 010923ia

STA: A.S.3

TOP: Analysis of Data

125 ANS: 1

PTS: 2

REF: 060807ia

STA: A.A.13

TOP: Multiplication of Powers

126 ANS: 1

$$\sin C = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{13}{85}$$

PTS: 2

REF: fall0721ia

STA: A.A.42

TOP: Basic Trigonometric Ratios

127 ANS: 1

$$8^2 + 15^2 = c^2$$

$$c^2 = 289$$

$$c = 17$$

PTS: 2

REF: 080906ia

STA: A.A.45

TOP: Pythagorean Theorem

128 ANS: 2

$$P = 2l + 2w$$

$$P - 2l = 2w$$

$$\frac{P - 2l}{2} = w$$

PTS: 2

REF: 010911ia

STA: A.A.23

TOP: Transforming Formulas

129 ANS: 4

$$\frac{(d \times 3) + (2 \times 2d)}{2 \times 3} = \frac{3d + 4d}{6} = \frac{7d}{6}$$

PTS: 2

REF: fall0727ia

STA: A.A.17

TOP: Expressions

130 ANS: 4

PTS: 2

REF: fall0715ia

STA: A.A.5

TOP: Modeling Inequalities

131 ANS:

$$0 \leq t \leq 40$$

PTS: 2

REF: 060833ia

STA: A.A.31

TOP: Set Theory

132 ANS: 2

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

$$3(x + 2) = 5(x - 4)$$

$$3x + 6 = 5x - 20$$

$$26 = 2x$$

$$x = 13$$

PTS: 2

REF: 080909ia

STA: A.A.25

TOP: Solving Equations with Fractional Expressions

133 ANS: 3

The other situations are quantitative.

PTS: 2

REF: 060819ia

STA: A.S.1

TOP: Analysis of Data

134 ANS: 3                   PTS: 2                   REF: 060825ia           STA: A.A.45  
TOP: Pythagorean Theorem

135 ANS: 3                   PTS: 2                   REF: 060808ia           STA: A.N.8  
TOP: Permutations

136 ANS: 3                   PTS: 2                   REF: 080907ia           STA: A.S.20  
TOP: Theoretical Probability

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

$$w^2 + 15w - 54 = 0$$

$$(w + 18)(w - 3) = 0$$

$$w = 3$$

PTS: 4                   REF: 060837ia           STA: A.A.8           TOP: Geometric Applications of Quadratics  
138 ANS: 4

$$A = lw = (3w - 7)(w) = 3w^2 - 7w$$

PTS: 2                   REF: 010924ia           STA: A.A.1           TOP: Geometric Applications of Quadratics  
139 ANS:

6, -2.       $\frac{x+1}{x} = \frac{-7}{x-12}$

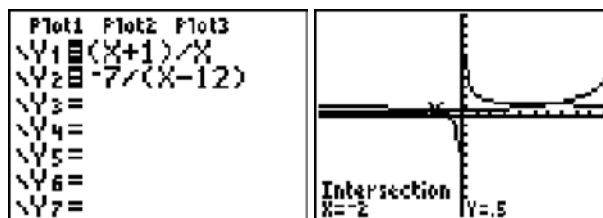
$$(x+1)(x-12) = -7x$$

$$x^2 - 11x - 12 = -7x$$

$$x^2 - 4x - 12 = 0$$

$$(x-6)(x+2) = 0$$

$$x = 6 \text{ or } -2$$

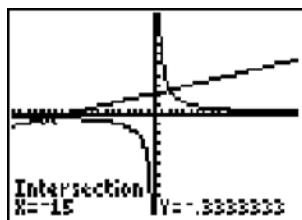


PTS: 4                   REF: fall0739ia           STA: A.A.26           TOP: Solving Rationals

140 ANS: 2  
 $1.5^3 = 3.375$

PTS: 2                   REF: 060809ia           STA: A.G.2           TOP: Volume

141 ANS: 4



$$\frac{5}{x} = \frac{x+13}{6}$$

$$x^2 + 13x = 30$$

$$x^2 + 13x - 30 = 0$$

$$(x+15)(x-2) = 0$$

$$x = -15 \text{ or } 2$$

PTS: 2

REF: 060826ia

STA: A.A.26

TOP: Solving Rationals

142 ANS: 3

$$x^2 - 6x = 0$$

$$x(x-6) = 0$$

$$x = 0 \text{ or } x = 6$$

PTS: 2

REF: 080921ia

STA: A.A.27

TOP: Solving Quadratics by Factoring

143 ANS:

$$7. 15x + 22 \geq 120$$

$$x \geq 6.5\bar{3}$$

PTS: 3

REF: fall0735ia

STA: A.A.6

TOP: Modeling Inequalities

144 ANS: 4

$$\frac{x^2-1}{x+1} \cdot \frac{x+3}{3x-3} = \frac{(x+1)(x-1)}{x+1} \cdot \frac{x+3}{3(x-1)} = \frac{x+3}{3}$$

PTS: 2

REF: 060815ia

STA: A.A.18

TOP: Multiplication and Division of Rationals

145 ANS: 3

$$35000(1-0.05)^4 \approx 28507.72$$

PTS: 2

REF: fall0719ia

STA: A.A.9

TOP: Exponential Functions

146 ANS: 3

PTS: 2

REF: 060817ia

STA: A.A.15

TOP: Undefined Rationals

147 ANS:

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

PTS: 2

REF: 010932ia

STA: A.A.12

TOP: Division of Powers

148 ANS: 2

$$m = \frac{5-3}{2-7} = -\frac{2}{5}$$

PTS: 2 REF: 010913ia STA: A.A.33 TOP: Slope

149 ANS: 4

$$SA = 2lw + 2hw + 2lh = 2(3)(1.5) + 2(2)(1.5) + 2(3)(2) = 27$$

PTS: 2 REF: 060827ia STA: A.G.2 TOP: Surface Area

150 ANS:

225000, 175000, the median better represents the value since it is closer to more values than the mean.

PTS: 4 REF: fall0737ia STA: A.S.4

TOP: Frequency Histograms, Bar Graphs and Tables

151 ANS: 4

$$A = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20\}$$

PTS: 2 REF: 080912ia STA: A.A.30 TOP: Set Theory

152 ANS: 4

PTS: 2

REF: fall0730ia

STA: A.G.3

TOP: Defining Functions

153 ANS: 1

PTS: 2

REF: fall0723ia

STA: A.M.3

TOP: Error

154 ANS: 4

$$\frac{2^6}{2^1} = 2^5$$

PTS: 2 REF: 060813ia STA: A.A.12 TOP: Division of Powers

155 ANS: 1

$$-2x + 5 > 17$$

$$-2x > 12$$

$$x < -6$$

PTS: 2 REF: fall0724ia STA: A.A.21 TOP: Interpreting Solutions

156 ANS: 2

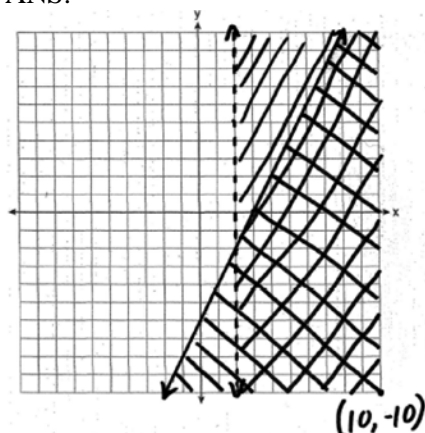
PTS: 2

REF: 060821ia

STA: A.A.5

TOP: Modeling Inequalities

157 ANS:



PTS: 4 REF: 010938ia STA: A.G.7 TOP: Systems of Linear Inequalities

158 ANS: 1 PTS: 2 REF: 080911ia STA: A.A.36

TOP: Parallel and Perpendicular Lines

159 ANS:

$$\frac{x-7}{3x} \cdot \frac{2x^2-8x-42}{6x^2} \div \frac{x^2-9}{x^2-3x} = \frac{2(x^2-4x-21)}{6x^2} \cdot \frac{x(x-3)}{(x+3)(x-3)} = \frac{(x-7)(x+3)}{3x} \cdot \frac{1}{x+3} = \frac{x-7}{3x}$$

PTS: 4 REF: 080937ia STA: A.A.18 TOP: Multiplication and Division of Rationals

160 ANS: 4 PTS: 2 REF: 060805ia STA: A.S.12

TOP: Scatter Plots

161 ANS: 2 PTS: 2 REF: fall0701ia STA: A.S.7

TOP: Scatter Plots

162 ANS: 4

Let  $x$  = youngest brother and  $x + 4$  = oldest brother.  $3x - (x + 4) = 48$ .

$$2x - 4 = 48$$

$$x = 26$$

PTS: 2 REF: 080928ia STA: A.A.6 TOP: Modeling Equations

163 ANS: 4 PTS: 2 REF: 010908ia STA: A.A.9

TOP: Exponential Functions

164 ANS: 2

$$\frac{9x^4 - 27x^6}{3x^3} = \frac{9x^4(1 - 3x^2)}{3x^3} = 3x(1 - 3x^2)$$

PTS: 2 REF: fall0718ia STA: A.A.14 TOP: Rational Expressions

165 ANS: 3

An element of the domain, 1, is paired with two different elements of the range, 3 and 7.

PTS: 2 REF: 080919ia STA: A.G.3 TOP: Defining Functions

166 ANS: 1 PTS: 2 REF: 010905ia STA: A.G.4

TOP: Graphing Functions and Relations

167 ANS: 2

$$\tan 32 = \frac{x}{25}$$

$$x \approx 15.6$$

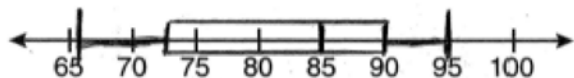
PTS: 2 REF: 080914ia STA: A.A.44 TOP: Using Trigonometry to Find a Side

168 ANS: 4

Surveying persons leaving a football game about a sports budget contains the most bias.

PTS: 2 REF: 080910ia STA: A.S.3 TOP: Analysis of Data

169 ANS:



PTS: 4 REF: 080939ia STA: A.S.5 TOP: Box-and-Whisker Plots

170 ANS: 1

A rooster crows before sunrise, not because of the sun.

PTS: 2 REF: fall0707ia STA: A.S.14 TOP: Analysis of Data

171 ANS:

$$1,512, 1,551.25, 0.025. \quad 36 \times 42 = 1512. \quad 36.5 \times 42.5 = 1551.25. \quad RE = \left| \frac{1512 - 1551.25}{1551.25} \right| \approx 0.025.$$

PTS: 3 REF: 010934ia STA: A.M.3 TOP: Error

172 ANS: 3

$$500(1+0.06)^3 \approx 596$$

PTS: 2 REF: 080929ia STA: A.A.9 TOP: Exponential Functions

173 ANS: 3 PTS: 2 REF: 010917ia STA: A.A.29

TOP: Set Theory

174 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 REF: 010939ia STA: A.S.19 TOP: Sample Space

175 ANS: 2 PTS: 2 REF: fall0725ia STA: A.N.4

TOP: Operations with Scientific Notation

176 ANS: 1

The slope of both is  $-4$ .

PTS: 2 REF: 060814ia STA: A.A.38 TOP: Parallel and Perpendicular Lines

177 ANS: 4

$$P(O) = \frac{3}{6}, P(E) = \frac{3}{6}, P(< 6) = \frac{5}{6}, P(> 4) = \frac{2}{6}$$

PTS: 2 REF: 010903ia STA: A.S.22 TOP: Theoretical Probability

178 ANS: 2

$$\frac{6}{5x} - \frac{2}{3x} = \frac{18x - 10x}{15x^2} = \frac{8x}{15x^2} = \frac{8}{15x}$$

PTS: 2 REF: 010921ia STA: A.A.17 TOP: Addition and Subtraction of Rationals

179 ANS: 4

$$y = mx + b$$

$$-1 = (2)(3) + b$$

$$b = -7$$

PTS: 2 REF: 080927ia STA: A.A.34 TOP: Writing Linear Equations

180 ANS: 3

$$m = \frac{1 - (-4)}{-6 - 4} = -\frac{1}{2}$$

PTS: 2 REF: 060820ia STA: A.A.33 TOP: Slope

181 ANS:

33.4. Serena needs 24 (9 + 6 + 9) feet of fencing to surround the rectangular portion of the garden. The length of the fencing needed for the semicircular portion of the garden is  $\frac{1}{2} \pi d = 3\pi \approx 9.4$  feet.

PTS: 2 REF: fall0733ia STA: A.G.1 TOP: Compositions of Polygons and Circles

182 ANS:

$$\frac{1}{6}, 16.67\%, \$13.50. \frac{18 - 15}{18} = \frac{1}{6}. 18 \times 0.75 = 13.5$$

PTS: 3 REF: 060835ia STA: A.N.5 TOP: Percents

183 ANS: 3

$$\frac{(2x^3)(8x^5)}{4x^6} = \frac{16x^8}{4x^6} = 4x^2$$

PTS: 2 REF: fall0703ia STA: A.A.12 TOP: Division of Powers

184 ANS: 1

The slope of  $y = 3 - 2x$  is  $-2$ . Using  $m = -\frac{A}{B}$ , the slope of  $4x + 2y = 5$  is  $-\frac{4}{2} = -2$ .

PTS: 2 REF: 010926ia STA: A.A.38 TOP: Parallel and Perpendicular Lines



185 ANS: 3

$$b = 42 - r \quad r = 2b + 3$$

$$r = 2b + 3 \quad r = 2(42 - r) + 3$$

$$r = 84 - 2r + 3$$

$$3r = 87$$

$$r = 29$$

PTS: 2

REF: 060812ia

STA: A.A.7

TOP: Writing Linear Systems

186 ANS: 1

$$0.07m + 19 \leq 29.50$$

$$0.07m \leq 10.50$$

$$m \leq 150$$

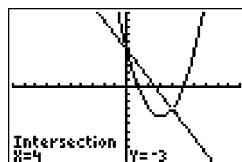
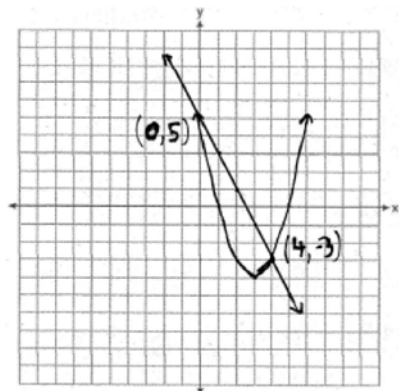
PTS: 2

REF: 010904ia

STA: A.A.6

TOP: Modeling Inequalities

187 ANS:



X	Y1	Y2
0	5	5
1	0	0
2	-1	-1
3	0	0
4	-3	-3
5	0	0
6	5	5
7	12	12
8	21	21
9	32	32
10	45	45
11	60	60
12	77	77
13	96	96
14	117	117
15	140	140
16	165	165
17	192	192
18	221	221
19	252	252
20	285	285
21	320	320
22	357	357
23	396	396
24	437	437
25	480	480
26	525	525
27	572	572
28	621	621
29	672	672
30	725	725
31	780	780
32	837	837
33	896	896
34	957	957
35	1020	1020
36	1085	1085
37	1152	1152
38	1221	1221
39	1292	1292
40	1365	1365
41	1440	1440
42	1517	1517
43	1596	1596
44	1677	1677
45	1760	1760
46	1845	1845
47	1932	1932
48	2021	2021
49	2112	2112
50	2205	2205
51	2300	2300
52	2400	2400
53	2505	2505
54	2615	2615
55	2730	2730
56	2850	2850
57	2975	2975
58	3105	3105
59	3240	3240
60	3380	3380
61	3525	3525
62	3675	3675
63	3830	3830
64	3990	3990
65	4155	4155
66	4325	4325
67	4500	4500
68	4680	4680
69	4865	4865
70	5055	5055
71	5250	5250
72	5450	5450
73	5655	5655
74	5865	5865
75	6080	6080
76	6300	6300
77	6525	6525
78	6755	6755
79	6990	6990
80	7230	7230
81	7475	7475
82	7725	7725
83	7980	7980
84	8240	8240
85	8505	8505
86	8775	8775
87	9050	9050
88	9330	9330
89	9615	9615
90	9905	9905
91	10200	10200
92	10500	10500
93	10805	10805
94	11115	11115
95	11430	11430
96	11750	11750
97	12075	12075
98	12405	12405
99	12740	12740
100	13080	13080

PTS: 4

REF: fall0738ia

STA: A.G.9

TOP: Quadratic-Linear Systems

188 ANS: 4

$$25(x - 3) = 25x - 75$$

PTS: 2

REF: 060823ia

STA: A.A.1

TOP: Expressions

189 ANS: 2

$$\left| \frac{149.6 - 174.2}{149.6} \right| \approx 0.1644$$

PTS: 2

REF: 080926ia

STA: A.M.3

TOP: Error

190 ANS:

Greg's rate of 5.5 is faster than Dave's rate of 5.3.  $\frac{\text{distance}}{\text{time}} = \frac{11}{2} = 5.5. \quad \frac{16}{3} = 5.\bar{3}$

PTS: 3

REF: 080936ia

STA: A.M.1

TOP: Speed

191 ANS: 1

PTS: 2

REF: 080924ia

STA: A.G.1

TOP: Compositions of Polygons and Circles

192 ANS:

$$50, 1.5, 10. \frac{\text{distance}}{\text{time}} = \frac{60}{1.2} = 50. \frac{\text{distance}}{\text{time}} = \frac{60}{40} = 1.5. \text{ speed} \times \text{time} = 55 \times 2 = 110. 120 - 110 = 10$$

PTS: 3 REF: fall0734ia STA: A.M.1 TOP: Speed

193 ANS: 4

$$\frac{\text{distance}}{\text{time}} = \frac{24}{6} = 4$$

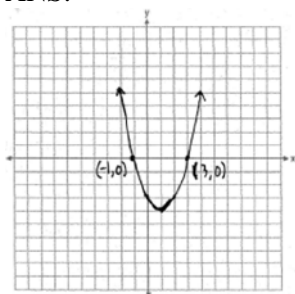
PTS: 2 REF: 010902ia STA: A.M.1 TOP: Speed

194 ANS:

$$d = 6.25h, 250. d = 6.25(40) = 250$$

PTS: 2 REF: 010933ia STA: A.N.5 TOP: Direct Variation

195 ANS:



PTS: 3 REF: 060836ia STA: A.G.8 TOP: Solving Quadratics by Graphing

196 ANS: 3

$$\sqrt{72} = \sqrt{36} \sqrt{2} = 6\sqrt{2}$$

PTS: 2 REF: 010920ia STA: A.N.2 TOP: Simplifying Radicals

197 ANS: 1

$$m = \frac{4 - (-4)}{-5 - 15} = -\frac{2}{5}$$

PTS: 2 REF: 080915ia STA: A.A.33 TOP: Slope

198 ANS: 2

The median score, 10, is the vertical line in the center of the box.

PTS: 2 REF: fall0709ia STA: A.S.5 TOP: Box-and-Whisker Plots

199 ANS: 2

$$\frac{2x^2 - 12x}{x - 6} = \frac{2x(x - 6)}{x - 6} = 2x$$

PTS: 2 REF: 060824ia STA: A.A.14 TOP: Rational Expressions

200 ANS:

$$x = \frac{-b}{2a} = \frac{-(-8)}{2(-2)} = -2$$

$$y = -2(-2)^2 - 8(-2) + 3 = 11$$

PTS: 3 REF: 080934ia STA: A.A.41  
TOP: Identifying the Vertex of a Quadratic Given Equation

201 ANS: 1

$30^2 + 40^2 = c^2$ . 30, 40, 50 is a multiple of 3, 4, 5.

$$2500 = c^2$$

$$50 = c$$

PTS: 2 REF: fall0711ia STA: A.A.45 TOP: Pythagorean Theorem  
202 ANS: 1 PTS: 2 REF: 060804ia STA: A.A.19  
TOP: Factoring the Difference of Perfect Squares

203 ANS: 2

$$\sin A = \frac{8}{12}$$

$$A \approx 42$$

PTS: 2 REF: 060816ia STA: A.A.43 TOP: Using Trigonometry to Find an Angle  
204 ANS: 1

$$\frac{2}{x} - 3 = \frac{26}{x}$$

$$-3 = \frac{24}{x}$$

$$x = -8$$

PTS: 2 REF: 010918ia STA: A.A.26 TOP: Solving Rationals  
205 ANS: 3

$$m = \frac{4 - 10}{3 - (-6)} = -\frac{2}{3}$$

PTS: 2 REF: fall0716ia STA: A.A.33 TOP: Slope  
206 ANS:

$$50. 12 + 10 + 12 + \frac{1}{2}(10\pi) \approx 50$$

PTS: 2 REF: 010931ia STA: A.G.1 TOP: Compositions of Polygons and Circles  
207 ANS: 1

To determine student interest, survey the widest range of students.

PTS: 2 REF: 060803ia STA: A.S.3 TOP: Analysis of Data

208 ANS: 4

$$-2(x-5) < 4$$

$$-2x + 10 < 4$$

$$-2x < -6$$

$$x > 3$$

PTS: 2

REF: 080913ia

STA: A.A.21

TOP: Interpreting Solutions

209 ANS: 4

$$w(w+5) = 36$$

$$w^2 + 5w - 36 = 0$$

PTS: 2

REF: fall0726ia

STA: A.A.5

TOP: Geometric Applications of Quadratics

210 ANS: 3

$$5x + 2y = 48$$

$$3x + 2y = 32$$

$$2x = 16$$

$$x = 8$$

PTS: 2

REF: fall0708ia

STA: A.A.7

TOP: Solving Linear Systems

211 ANS: 2

PTS: 2

REF: 010916ia

STA: A.G.10

TOP: Identifying the Vertex of a Quadratic Given Graph

212 ANS:

$$5,112. (12 \times 30 \times 16) - (6 \times 12 \times 9) = 5112$$

PTS: 2

REF: 080932ia

STA: A.G.2

TOP: Volume

213 ANS: 4

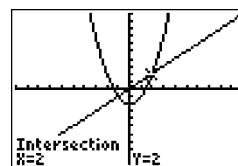
PTS: 2

REF: 010927ia

STA: A.N.4

TOP: Operations with Scientific Notation

214 ANS: 4



$$x^2 - 2 = x \quad \text{Since } y = x, \text{ the solutions are } (2, 2) \text{ and } (-1, -1).$$

$$x^2 - x - 2 = 0$$

$$(x-2)(x+1) = 0$$

$$x = 2 \text{ or } -1$$

PTS: 2

REF: 060810ia

STA: A.A.11

TOP: Quadratic-Linear Systems

215 ANS: 1

PTS: 2

REF: fall0728ia

STA: A.A.15

TOP: Undefined Rationals

216 ANS: 3

PTS: 2

REF: fall0706ia

STA: A.A.19

TOP: Factoring the Difference of Perfect Squares

- 217 ANS: 2                   PTS: 2                   REF: 080901ia           STA: A.A.4  
TOP: Modeling Equations
- 218 ANS:  
618.45, 613.44, 0.008.  $21.7 \times 28.5 = 618.45$ .  $21.6 \times 28.4 = 613.44$ .  $\left| \frac{618.45 - 613.44}{613.44} \right| \approx 0.008$ . An error of less than 1% would seem to be insignificant.
- PTS: 4                   REF: 060838ia           STA: A.M.3           TOP: Error
- 219 ANS:  
315,000, 180,000, the median better represents value since it is closer to more prices than the mean.
- PTS: 4                   REF: 060839ia           STA: A.S.4  
TOP: Frequency Histograms, Bar Graphs and Tables
- 220 ANS: 1  
 $13.95 + 0.49s \leq 50.00$   
 $0.49s \leq 36.05$   
 $s \leq 73.57$
- PTS: 2                   REF: 080904ia           STA: A.A.6           TOP: Modeling Inequalities
- 221 ANS: 4  
The mean is  $80.\bar{6}$ , the median is 84.5 and the mode is 87.
- PTS: 2                   REF: 010907ia           STA: A.S.4           TOP: Central Tendency
- 222 ANS: 3  
 $|-5(5) + 12| = |-13| = 13$
- PTS: 2                   REF: 080923ia           STA: A.N.6           TOP: Absolute Value
- 223 ANS: 1                   PTS: 2                   REF: 080902ia           STA: A.A.19  
TOP: Factoring the Difference of Perfect Squares
- 224 ANS: 2                   PTS: 2                   REF: 080930ia           STA: A.S.17  
TOP: Scatter Plots
- 225 ANS: 2  
The two values are shoe size and height.
- PTS: 2                   REF: fall0714ia           STA: A.S.2           TOP: Analysis of Data
- 226 ANS: 3                   PTS: 2                   REF: fall0705ia           STA: A.N.1  
TOP: Identifying Properties
- 227 ANS:  
 $10 + 2d \geq 75$ , 33.  $10 + 2d \geq 75$   
 $d \geq 32.5$
- PTS: 3                   REF: 060834ia           STA: A.A.6           TOP: Modeling Inequalities

228 ANS:

 $36 - 9\pi$ . 15.6. Area of square–area of 4 quarter circles.  $(3 + 3)^2 - 3^2\pi = 36 - 9\pi$ 

PTS: 2 REF: 060832ia STA: A.G.1 TOP: Compositions of Polygons and Circles

229 ANS: 1 PTS: 2 REF: 060801ia STA: A.G.4

TOP: Families of Functions

230 ANS: 2

$$5\sqrt{20} = 5\sqrt{4\sqrt{5}} = 10\sqrt{5}$$

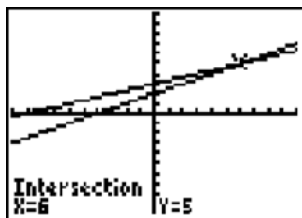
PTS: 2 REF: 080922ia STA: A.N.2 TOP: Simplifying Radicals

231 ANS: 4

$$V = \pi r^2 h = \pi \cdot 6^2 \cdot 15 \approx 1696.5$$

PTS: 2 REF: fall0712ia STA: A.G.2 TOP: Volume

232 ANS: 3



$$\frac{k+4}{2} = \frac{k+9}{3}$$

$$3(k+4) = 2(k+9)$$

$$3k + 12 = 2k + 18$$

$$k = 6$$

PTS: 2 REF: 010906ia STA: A.A.26

TOP: Solving Equations with Fractional Expressions

233 ANS:

$$30.4\%; \text{ no, } 23.3\%. \quad \frac{7.50 - 5.75}{5.75} = 30.4\%. \quad \frac{7.50 - 5.75}{7.50} = 23.3\%$$

PTS: 3 REF: 080935ia STA: A.N.5 TOP: Percents

234 ANS: 4 PTS: 2 REF: 060829ia STA: A.G.5

TOP: Graphing Quadratics

235 ANS: 2 PTS: 2 REF: 010925ia STA: A.A.15

TOP: Undefined Rationals

236 ANS: 3 PTS: 2 REF: fall0702ia STA: A.S.23

TOP: Theoretical Probability

237 ANS:

Not all of the homework problems are equations. The first problem is an expression.

PTS: 2 REF: 080931ia STA: A.A.3 TOP: Expressions

238 ANS:

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

PTS: 3 REF: fall0736ia STA: A.S.19 TOP: Sample Space

239 ANS: 4

The transformation is a reflection in the  $x$ -axis.

PTS: 2 REF: fall0722ia STA: A.G.4 TOP: Absolute Value

240 ANS: 2

The set of integers greater than -2 and less than 6 is  $\{-1,0,1,2,3,4,5\}$ . The subset of this set that is the positive factors of 5 is  $\{1,5\}$ . The complement of this subset is  $\{-1,0,2,3,4\}$ .

PTS: 2 REF: 060818ia STA: A.A.30 TOP: Set Theory

241 ANS: 3

$$F = \frac{9}{5}C + 32 = \frac{9}{5}(15) + 32 = 59$$

PTS: 2 REF: 010901ia STA: A.M.2 TOP: Conversions

242 ANS: 3 PTS: 2 REF: fall0710ia STA: A.A.31

TOP: Set Theory

243 ANS:

$$\frac{38}{\pi}, 2. \quad V = \pi r^2 h \quad \cdot \quad \frac{36}{\left(\frac{38}{\pi}\right)} \approx 2.97. \text{ Three cans will not fit. The maximum number is 2.}$$

$$342 = \pi \left(\frac{6}{2}\right)^2 h$$

$$\frac{342}{9\pi} = h$$

$$\frac{38}{\pi} = h$$

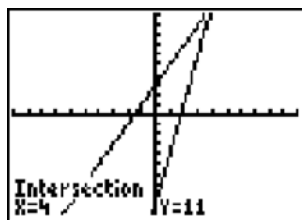
PTS: 3 REF: 010936ia STA: A.G.2 TOP: Volume

244 ANS:

$\frac{3}{8}$ . (H,H,H), (H,H,T), (H,T,H), (**H,T,T**), (T,H,H), (**T,H,T**), (**T,T,H**), (T,T,T)

PTS: 2 REF: 080933ia STA: A.S.19 TOP: Sample Space

245 ANS:



$$4. 3 + 2g = 5g - 9$$

$$12 = 3g$$

$$g = 4$$

PTS: 2

REF: fall0732ia

STA: A.A.22

TOP: Solving Equations

246 ANS: 2

The slope of the inequality is  $-\frac{1}{2}$ .

PTS: 2

REF: fall0720ia

STA: A.G.6

TOP: Linear Inequalities

247 ANS: 1

$$\frac{\sqrt{32}}{4} = \frac{\sqrt{16}\sqrt{2}}{4} = \sqrt{2}$$

PTS: 2

REF: 060828ia

STA: A.N.2

TOP: Simplifying Radicals

248 ANS: 2

$$\frac{2}{3x} + \frac{4}{3x} = \frac{9x + 8x}{6x^2} = \frac{17x}{6x^2} = \frac{17}{6x}$$

PTS: 2

REF: 080917ia

STA: A.A.17

TOP: Addition and Subtraction of Rationals

249 ANS: 4

PTS: 2

REF: 080903ia

STA: A.A.12

TOP: Multiplication of Powers

250 ANS:

$$\frac{3}{4x-8} \cdot \frac{3x+6}{4x+12} \div \frac{x^2-4}{x+3} = \frac{3(x+2)}{4(x+3)} \cdot \frac{x+3}{(x+2)(x-2)} = \frac{3}{4(x-2)}$$

PTS: 3

REF: 010935ia

STA: A.A.18

TOP: Multiplication and Division of Rationals

251 ANS: 3

$$(3-1) \times 2 \times 3 = 12$$

PTS: 2

REF: 080905ia

STA: A.N.7

TOP: Conditional Probability

252 ANS:

$$(-2, 5). \quad 3x + 2y = 4 \quad 12x + 8y = 16. \quad 3x + 2y = 4$$

$$4x + 3y = 7 \quad 12x + 9y = 21 \quad 3x + 2(5) = 4$$

$$y = 5 \quad 3x = -6$$

$$x = -2$$

PTS: 4

REF: 010937ia

STA: A.A.10

TOP: Solving Linear Systems



- 253 ANS: 3                   PTS: 2                   REF: 080925ia           STA: A.G.4  
TOP: Identifying the Equation of a Graph
- 254 ANS: 2                   PTS: 2                   REF: 010915ia           STA: A.A.5  
TOP: Modeling Equations
- 255 ANS: 1  
 $\frac{1}{8} \times \frac{1}{8} = \frac{1}{64}$
- PTS: 2                   REF: 010928ia           STA: A.S.23           TOP: Probability of Independent Events
- 256 ANS: 4                   PTS: 2                   REF: fall0704ia           STA: A.A.29  
TOP: Set Theory
- 257 ANS: 2  
 $3c + 4m = 12.50$   
 $3c + 2m = 8.50$   
 $2m = 4.00$   
 $m = 2.00$
- PTS: 2                   REF: 060806ia           STA: A.A.7           TOP: Writing Linear Systems
- 258 ANS:  
Ann's.  $\frac{225}{15} = 15$  mpg is greater than  $\frac{290}{23.2} = 12.5$  mpg
- PTS: 2                   REF: 060831ia           STA: A.M.1           TOP: Using Rate
- 259 ANS: 2                   PTS: 2                   REF: 060830ia           STA: A.A.9  
TOP: Exponential Functions
- 260 ANS: 1  
 $m = \frac{3-0}{0-2} = -\frac{3}{2}$ . Using the given y-intercept (0,3) to write the equation of the line  $y = -\frac{3}{2}x + 3$ .
- PTS: 2                   REF: fall0713ia           STA: A.A.35           TOP: Writing Linear Equations
- 261 ANS: 4                   PTS: 2                   REF: 010930ia           STA: A.G.3  
TOP: Defining Functions
- 262 ANS: 4  
 $P(G \text{ or } W) = \frac{4}{8}, P(G \text{ or } B) = \frac{3}{8}, P(Y \text{ or } B) = \frac{4}{8}, P(Y \text{ or } G) = \frac{5}{8}$
- PTS: 2                   REF: 060802ia           STA: A.S.22           TOP: Theoretical Probability
- 263 ANS: 2                   PTS: 2                   REF: 080916ia           STA: A.G.8  
TOP: Solving Quadratics by Graphing
- 264 ANS: 4                   PTS: 2                   REF: 010929ia           STA: A.S.6  
TOP: Box-and-Whisker Plots
- 265 ANS: 3  
The number of correct answers on a test causes the test score.
- PTS: 2                   REF: 080908ia           STA: A.S.13           TOP: Analysis of Data

266 ANS:

$$30\sqrt{2}. \quad 5\sqrt{72} = 5\sqrt{36\sqrt{2}} = 30\sqrt{2}$$

PTS: 2

REF: fall0731ia

STA: A.N.2

TOP: Simplifying Radicals

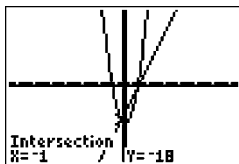
267 ANS: 4

PTS: 2

REF: fall0717ia

STA: A.G.4

268 ANS: 2



$$x^2 - x - 20 = 3x - 15. \quad y = 3x - 15$$

$$x^2 - 4x - 6 = 0 \quad = 3(-1) - 15$$

$$(x - 5)(x + 1) = 0 \quad = -18$$

$$x = 5 \text{ or } -1$$

PTS: 2

REF: 010922ia

STA: A.A.11

TOP: Quadratic-Linear Systems

269 ANS: 2

PTS: 2

REF: 010909ia

STA: A.A.19

TOP: Factoring the Difference of Perfect Squares

270 ANS: 1

$$x^2 + 7x + 10 = 0$$

$$(x + 5)(x + 2) = 0$$

$$x = -5 \text{ or } -2$$

PTS: 2

REF: 080918ia

STA: A.A.15

TOP: Undefined Rationals

271 ANS: 3

$$25 - 18 = 7$$

PTS: 2

REF: 060822ia

STA: A.S.9

TOP: Frequency Histograms, Bar Graphs and Tables

272 ANS: 3

$$\cos 30 = \frac{x}{24}$$

$$x \approx 21$$

PTS: 2

REF: 010912ia

STA: A.A.44

TOP: Using Trigonometry to Find a Side

273 ANS: 4

PTS: 2

REF: fall0729ia

STA: A.A.2

TOP: Expressions