

JEFFERSON MATH PROJECT

REGENTS BY TYPE

The NY Integrated Algebra Regents Exams
Fall 2007-January 2012
(Answer Key)

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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 Multiple Choice Regents Exam Questions

Answer Section

1 ANS: 1 REF: 010905ia STA: A.G.4 TOP: Families of Functions

2 ANS: 4

$$3y + 2x = 8$$

$$3(-2) + 2(7) = 8$$

$$-6 + 14 = 8$$

REF: 011218ia STA: A.A.39 TOP: Identifying Points on a Line

3 ANS: 3 REF: 060817ia STA: A.A.15 TOP: Undefined Rationals

4 ANS: 2

The two values are shoe size and height.

REF: fall0714ia STA: A.S.2 TOP: Analysis of Data

5 ANS: 2 REF: 080901ia STA: A.A.4 TOP: Modeling Equations

6 ANS: 4

The transformation is a reflection in the x -axis.

REF: fall0722ia STA: A.G.5 TOP: Graphing Absolute Value Functions

7 ANS: 4

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

REF: 010924ia STA: A.A.1 TOP: Expressions

8 ANS: 4

$$m = \frac{-3 - 1}{2 - 5} = \frac{-4}{-3} = \frac{4}{3}$$

REF: 011215ia STA: A.A.33 TOP: Slope

9 ANS: 4

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

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

10 ANS: 3 REF: 060808ia STA: A.N.8 TOP: Permutations

11 ANS: 1

The slope of both is -4 .

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

12 ANS: 2

The events are not mutually exclusive: $P(\text{prime}) = \frac{3}{6}$, $P(\text{even}) = \frac{3}{6}$, $P(\text{prime AND even}) = \frac{1}{6}$

$$P(\text{prime OR even}) = \frac{3}{6} + \frac{3}{6} - \frac{1}{6} = \frac{5}{6}$$

REF: 080830ia STA: A.S.23 TOP: Theoretical Probability

KEY: not mutually exclusive events

13 ANS: 1

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

REF: fall0721ia STA: A.A.42 TOP: Trigonometric Ratios

14 ANS: 2 REF: 010925ia STA: A.A.15 TOP: Undefined Rationals

15 ANS: 2

$$P = 2l + 2w$$

$$P - 2l = 2w$$

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

REF: 010911ia STA: A.A.23 TOP: Transforming Formulas

16 ANS: 1 REF: 080902ia STA: A.A.19

TOP: Factoring the Difference of Perfect Squares

17 ANS: 2 REF: fall0701ia STA: A.S.7 TOP: Scatter Plots

18 ANS: 2 REF: 080815ia STA: A.G.1 TOP: Compositions of Polygons and Circles

KEY: area

19 ANS: 2

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

REF: 080926ia STA: A.M.3 TOP: Error KEY: area

20 ANS: 3

$$2\sqrt{45} = 2\sqrt{9 \cdot 5} = 6\sqrt{5}$$

REF: 011203ia STA: A.N.2 TOP: Simplifying Radicals

21 ANS: 4



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

22 ANS: 4

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

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

23 ANS: 4 REF: fall0730ia STA: A.G.3 TOP: Defining Functions

24 ANS: 3
 $|-5(5) + 12| = |-13| = 13$

REF: 080923ia STA: A.N.6 TOP: Evaluating Expressions

25 ANS: 1
 $s = \frac{2x+t}{r}$

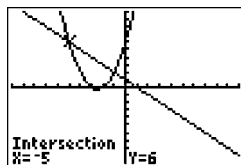
$$rs = 2x + t$$

$$rs - t = 2x$$

$$\frac{rs - t}{2} = x$$

REF: 011228ia STA: A.A.23 TOP: Transforming Formulas

26 ANS: 2



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

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

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

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

REF: 080812ia STA: A.A.11 TOP: Quadratic-Linear Systems

27 ANS: 3
 $5x + 2y = 48$

$$3x + 2y = 32$$

$$2x = 16$$

$$x = 8$$

REF: fall0708ia STA: A.A.10 TOP: Solving Linear Systems

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

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

29 ANS: 4 REF: fall0715ia STA: A.A.5 TOP: Modeling Inequalities

30 ANS: 3
 $\cos 30 = \frac{x}{24}$

$$x \approx 21$$

REF: 010912ia STA: A.A.44 TOP: Using Trigonometry to Find a Side

31 ANS: 2 REF: 011201ia STA: A.A.19
TOP: Factoring the Difference of Perfect Squares

32 ANS: 1
 $30^2 + 40^2 = c^2$. 30, 40, 50 is a multiple of 3, 4, 5.

$$2500 = c^2$$

$$50 = c$$

REF: fall0711ia STA: A.A.45 TOP: Pythagorean Theorem

33 ANS: 4
$$\frac{25x - 125}{x^2 - 25} = \frac{25(x - 5)}{(x + 5)(x - 5)} = \frac{25}{x + 5}$$

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

KEY: $a > 0$

34 ANS: 4
 $16^2 + b^2 = 34^2$

$$b^2 = 900$$

$$b = 30$$

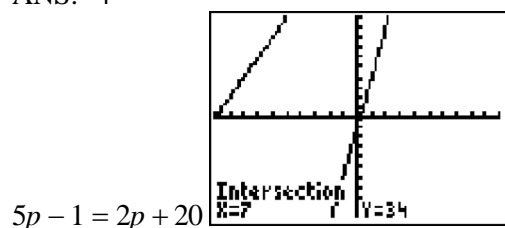
REF: 080809ia STA: A.A.45 TOP: Pythagorean Theorem

35 ANS: 3
The number of correct answers on a test causes the test score.

REF: 080908ia STA: A.S.13 TOP: Analysis of Data

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

37 ANS: 4



$$3p = 21$$

$$p = 7$$

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

38 ANS: 4 REF: fall0704ia STA: A.A.29 TOP: Set Theory

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

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

40 ANS: 2

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

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

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

$$l = 8$$

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

41 ANS: 1

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

REF: 060918ia STA: A.A.41 TOP: Identifying the Vertex of a Quadratic Given Equation

42 ANS: 2

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

REF: 010919ia STA: A.A.42 TOP: Trigonometric Ratios

43 ANS: 2

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

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

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

$$26 = 2x$$

$$x = 13$$

REF: 080909ia STA: A.A.25 TOP: Solving Equations with Fractional Expressions

44 ANS: 1

REF: 060807ia STA: A.A.13 TOP: Multiplication of Polynomials

45 ANS: 3

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

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

46 ANS: 2

$$L+S = 47$$

$$L-S = 15$$

$$2L = 62$$

$$L = 31$$

REF: 060912ia STA: A.A.7 TOP: Writing Linear Systems

47 ANS: 2

REF: 080802ia STA: A.N.1 TOP: Identifying Properties

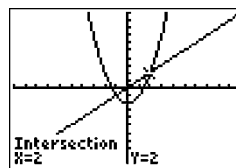
48 ANS: 4

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

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

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

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



REF: 060810ia STA: A.A.11 TOP: Quadratic-Linear Systems

49 ANS: 3

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

$$x = 5400$$

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

50 ANS: 4

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

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

51 ANS: 3 REF: 080907ia STA: A.S.20 TOP: Geometric Probability

52 ANS: 4

$$y = mx + b$$

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

$$b = -7$$

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

53 ANS: 1 REF: 080911ia STA: A.A.36 TOP: Parallel and Perpendicular Lines

54 ANS: 1

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

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

55 ANS: 2

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

REF: 060921ia STA: A.A.16 TOP: Rational Expressions

KEY: $a > 0$

56 ANS: 1 REF: 060801ia STA: A.G.4 TOP: Families of Functions

57 ANS: 4 REF: fall0729ia STA: A.A.2 TOP: Expressions

58 ANS: 1 REF: 011210ia STA: A.G.6 TOP: Linear Inequalities

59 ANS: 1

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

REF: 060828ia STA: A.N.2 TOP: Simplifying Radicals

60 ANS: 2

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

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

61 ANS: 1

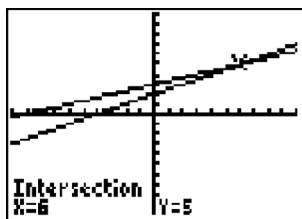
$$3x^2 - 27x = 0$$

$$3x(x - 9) = 0$$

$$x = 0, 9$$

REF: 011223ia STA: A.A.28 TOP: Roots of Quadratics

62 ANS: 3



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

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

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

$$k = 6$$

REF: 010906ia STA: A.A.26 TOP: Solving Rationals

63 ANS: 1

If the area of the square is 36, a side is 6, the diameter of the circle is 6, and its radius is 3. $A = \pi r^2 = 3^2 \pi = 9\pi$

REF: 011217ia STA: A.G.1 TOP: Compositions of Polygons and Circles

KEY: area

64 ANS: 2

$$x + 2y = 9$$

$$x - y = 3$$

$$3y = 6$$

$$y = 2$$

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

65 ANS: 4

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

REF: 011216ia STA: A.A.12 TOP: Powers of Powers

66 ANS: 1

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

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

67 ANS: 4 REF: 010908ia STA: A.A.9 TOP: Exponential Functions

68 ANS: 2

$$3c + 4m = 12.50$$

$$3c + 2m = 8.50$$

$$2m = 4.00$$

$$m = 2.00$$

REF: 060806ia STA: A.A.7 TOP: Writing Linear Systems

69 ANS: 4

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

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

70 ANS: 1 REF: fall0723ia STA: A.M.3 TOP: Error

KEY: area

71 ANS: 3

$$b = 3 + d \quad (3 + d)d = 40$$

$$bd = 40 \quad d^2 + 3d - 40 = 0$$

$$(d + 8)(d - 5) = 0$$

$$d = 5$$

REF: 011208ia STA: A.A.8 TOP: Writing Quadratics

72 ANS: 1

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

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

$$x = -6, 1$$

REF: 011214ia STA: A.A.15 TOP: Undefined Rationals

73 ANS: 2 REF: 060923ia STA: A.A.13 TOP: Addition and Subtraction of Polynomials

KEY: subtraction

74 ANS: 1 REF: 060920ia STA: A.G.6 TOP: Linear Inequalities

75 ANS: 1 REF: 080824ia STA: A.A.43 TOP: Using Trigonometry to Find an Angle

76 ANS: 4 REF: 060829ia STA: A.G.5 TOP: Graphing Quadratic Functions

77 ANS: 4

$$-4x + 2 > 10$$

$$-4x > 8$$

$$x < -2$$

REF: 080805ia STA: A.A.21 TOP: Interpreting Solutions

78 ANS: 1 REF: 060903ia STA: A.A.12 TOP: Division of Powers

79 ANS: 3

$$a + ar = b + r$$

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

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

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

80 ANS: 3

The other situations are quantitative.

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

81 ANS: 2

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

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

82 ANS: 2 REF: 010916ia STA: A.G.10

TOP: Identifying the Vertex of a Quadratic Given Graph

83 ANS: 2

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

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

84 ANS: 1

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

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

85 ANS: 3

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

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

86 ANS: 3

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

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

87 ANS: 1
 $x - 2y = 1$
 $x + 4y = 7$
 $-6y = -6$
 $y = 1$

REF: 080920ia STA: A.A.10 TOP: Solving Linear Systems

88 ANS: 3 REF: fall0702ia STA: A.S.23 TOP: Theoretical Probability
 KEY: mutually exclusive events

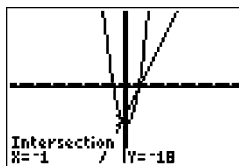
89 ANS: 4
 $P(G \text{ or } W) = \frac{4}{8}, P(G \text{ or } B) = \frac{3}{8}, P(Y \text{ or } B) = \frac{4}{8}, P(Y \text{ or } G) = \frac{5}{8}$

REF: 060802ia STA: A.S.22 TOP: Geometric Probability

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

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

91 ANS: 2



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

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

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

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

REF: 010922ia STA: A.A.11 TOP: Quadratic-Linear Systems

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

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

93 ANS: 3 REF: 010910ia STA: A.A.35 TOP: Writing Linear Equations

94 ANS: 3
 $\sqrt{72} = \sqrt{36} \sqrt{2} = 6\sqrt{2}$

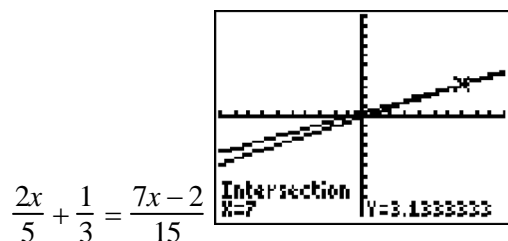
REF: 010920ia STA: A.N.2 TOP: Simplifying Radicals

95 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 $\left| \frac{9.261 - 8}{9.261} \right| \approx 0.14$.

REF: 060928ia STA: A.M.3 TOP: Error KEY: volume and surface area

- 96 ANS: 4 REF: 080903ia STA: A.A.12 TOP: Multiplication of Powers
- 97 ANS: 3 REF: 060924ia STA: A.G.8 TOP: Solving Quadratics by Graphing
- 98 ANS: 4
 $\frac{5}{45} = \frac{8}{x}$
 $5x = 360$
 $x = 72$
- REF: 060901ia STA: A.M.1 TOP: Speed
- 99 ANS: 1
 $y = mx + b$
 $-6 = (-3)(4) + b$
 $b = 6$
- REF: 060922ia STA: A.A.34 TOP: Writing Linear Equations
- 100 ANS: 3
 $x^2 - 6x = 0$
 $x(x - 6) = 0$
 $x = 0 \quad x = 6$
- REF: 080921ia STA: A.A.27 TOP: Solving Quadratics by Factoring
- 101 ANS: 4 REF: 080825ia STA: A.A.40 TOP: Systems of Linear Inequalities
- 102 ANS: 1
 $\frac{4x}{x-1} \cdot \frac{x^2-1}{3x+3} = \frac{4x}{x-1} \cdot \frac{(x+1)(x-1)}{3(x+1)} = \frac{4x}{3}$
- REF: 080826ia STA: A.A.18 TOP: Multiplication and Division of Rationals
KEY: multiplication
- 103 ANS: 3
 $35000(1 - 0.05)^4 \approx 28507.72$
- REF: fall0719ia STA: A.A.9 TOP: Exponential Functions
- 104 ANS: 3
 $(3 - 1) \times 2 \times 3 = 12$
- REF: 080905ia STA: A.N.7 TOP: Conditional Probability
- 105 ANS: 3 REF: 011205ia STA: A.A.1 TOP: Expressions

106 ANS: 4



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

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

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

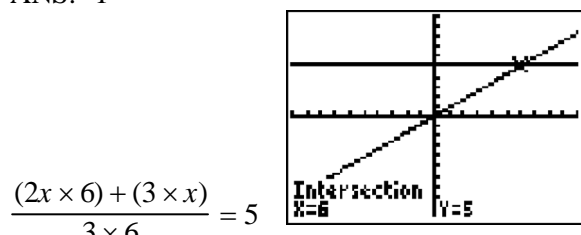
$$6x+5 = 7x-2$$

$$x = 7$$

REF: 080820ia STA: A.A.25 TOP: Solving Equations with Fractional Expressions

107 ANS: 1 REF: 011207ia STA: A.G.9 TOP: Quadratic-Linear Systems

108 ANS: 1



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

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

$$15x = 90$$

$$x = 6$$

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

109 ANS: 1 REF: 060804ia STA: A.A.19

TOP: Factoring the Difference of Perfect Squares

110 ANS: 1

$$\sqrt{1700^2 - 1300^2} \approx 1095$$

REF: 011221ia STA: A.A.45 TOP: Pythagorean Theorem

111 ANS: 3

The other situations are quantitative.

REF: 060819ia STA: A.S.1 TOP: Analysis of Data

112 ANS: 2 REF: 080823ia STA: A.A.32 TOP: Slope

113 ANS: 3

$$\tan PLM = \frac{\text{opposite}}{\text{adjacent}} = \frac{4}{3}$$

REF: 011226ia STA: A.A.42 TOP: Trigonometric Ratios

114 ANS: 4 REF: 060927ia STA: A.N.4 TOP: Operations with Scientific Notation

115 ANS: 2

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

$$x = 300$$

REF: 080807ia STA: A.G.4 TOP: Graphing Linear Functions

116 ANS: 2 REF: 011212ia STA: A.S.23 TOP: Theoretical Probability

KEY: independent events

117 ANS: 3 REF: 010917ia STA: A.A.29 TOP: Set Theory

118 ANS: 2

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

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

119 ANS: 3 REF: 011224ia STA: A.N.1 TOP: Properties of Reals

120 ANS: 3 REF: 080819ia STA: A.A.13 TOP: Addition and Subtraction of Polynomials

KEY: subtraction

121 ANS: 2 REF: 060821ia STA: A.A.5 TOP: Modeling Inequalities

122 ANS: 4

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

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

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

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

123 ANS: 2

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

REF: 080917ia STA: A.A.17 TOP: Addition and Subtraction of Rationals

124 ANS: 1

$$\frac{1}{8} \times \frac{1}{8} = \frac{1}{64}$$

REF: 010928ia STA: A.S.23 TOP: Geometric Probability

125 ANS: 1

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

$$7f + 10 = 1424$$

$$f = 202$$

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

126 ANS: 1

$$x = \frac{-b}{2a} = \frac{-(-3)}{2(2)} = \frac{3}{4}$$

REF: 011219ia STA: A.A.41 TOP: Identifying the Vertex of a Quadratic Given Equation

127 ANS: 3 REF: 060825ia STA: A.A.45 TOP: Pythagorean Theorem

128 ANS: 4 REF: 010930ia STA: A.G.3 TOP: Defining Functions

129 ANS: 3

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

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

130 ANS: 2 REF: fall0725ia STA: A.N.4 TOP: Operations with Scientific Notation

131 ANS: 4 REF: 060805ia STA: A.S.12 TOP: Scatter Plots

132 ANS: 3 REF: fall0706ia STA: A.A.19

TOP: Factoring the Difference of Perfect Squares

133 ANS: 4 REF: 060906ia STA: A.A.4 TOP: Modeling Inequalities

134 ANS: 2

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

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

135 ANS: 4 REF: 010927ia STA: A.N.4 TOP: Operations with Scientific Notation

136 ANS: 1

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

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

$$x = -8$$

REF: 010918ia STA: A.A.26 TOP: Solving Rationals

137 ANS: 2

$$1.5^3 = 3.375$$

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

138 ANS: 1

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

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

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

REF: 080918ia STA: A.A.15 TOP: Undefined Rationals

139 ANS: 4

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

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

REF: fall0726ia STA: A.A.5 TOP: Modeling Equations

140 ANS: 1 REF: 060811ia STA: A.G.10

TOP: Identifying the Vertex of a Quadratic Given Graph

141 ANS: 2 REF: 011227ia STA: A.A.3 TOP: Expressions

142 ANS: 3

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

REF: fall0716ia STA: A.A.33 TOP: Slope

143 ANS: 4

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

REF: 060823ia STA: A.A.1 TOP: Expressions

144 ANS: 4 REF: 011229ia STA: A.S.8 TOP: Scatter Plots

145 ANS: 4

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

$$2x - 4 = 48$$

$$x = 26$$

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

146 ANS: 2

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

$$x \approx 15.6$$

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

147 ANS: 2

$$\left| \frac{(2.6 \times 6.9) - (2.5 \times 6.8)}{(2.6 \times 6.9)} \right| \approx 0.052$$

REF: 011209ia STA: A.M.3 TOP: Error KEY: area

148 ANS: 1 REF: 011213ia STA: A.A.13 TOP: Addition and Subtraction of Polynomials

KEY: addition

- 149 ANS: 3 REF: 060919ia STA: A.G.3 TOP: Defining Functions
 150 ANS: 1 REF: 080803ia STA: A.A.4 TOP: Modeling Inequalities
 151 ANS: 3 REF: 011204ia STA: A.G.3 TOP: Defining Functions
 152 ANS: 3 REF: 011220ia STA: A.S.6 TOP: Box-and-Whisker Plots
 153 ANS: 3

$$3ax + b = c$$

$$3ax = c - b$$

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

- REF: 080808ia STA: A.A.23 TOP: Transforming Formulas
 154 ANS: 2

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

- REF: 060824ia STA: A.A.16 TOP: Rational Expressions
 KEY: $a > 0$

- 155 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 $y = -\frac{3}{2}x + 3$.

- REF: fall0713ia STA: A.A.35 TOP: Writing Linear Equations
 156 ANS: 3 REF: 060926ia STA: A.N.1 TOP: Properties of Reals

- 157 ANS: 1
 $\left| \frac{289 - 282}{289} \right| \approx 0.024$

- REF: 080828ia STA: A.M.3 TOP: Error KEY: volume and surface area
 158 ANS: 4 REF: 060916ia STA: A.A.15 TOP: Undefined Rationals
 159 ANS: 3

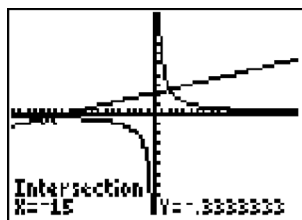
$$\frac{(2x^3)(8x^5)}{4x^6} = \frac{16x^8}{4x^6} = 4x^2$$

- REF: fall0703ia STA: A.A.12 TOP: Division of Powers
 160 ANS: 2 REF: 010909ia STA: A.A.19
 TOP: Factoring the Difference of Perfect Squares
 161 ANS: 3 REF: fall0705ia STA: A.N.1 TOP: Identifying Properties
 162 ANS: 4

The mean is $80.\bar{6}$, the median is 84.5 and the mode is 87.

- REF: 010907ia STA: A.S.4 TOP: Central Tendency

163 ANS: 4



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

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

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

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

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

REF: 060826ia STA: A.A.26 TOP: Solving Rationals

164 ANS: 1

$$0.07m + 19 \leq 29.50$$

$$0.07m \leq 10.50$$

$$m \leq 150$$

REF: 010904ia STA: A.A.6 TOP: Modeling Inequalities

165 ANS: 2 REF: 080916ia STA: A.G.8 TOP: Solving Quadratics by Graphing

166 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 $\{-1, 0, 2, 3, 4\}$.

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

167 ANS: 1

$$13.95 + 0.49s \leq 50.00$$

$$0.49s \leq 36.05$$

$$s \leq 73.57$$

REF: 080904ia STA: A.A.6 TOP: Modeling Inequalities

168 ANS: 4

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

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

169 ANS: 1

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

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

170 ANS: 1

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

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

171 ANS: 4 REF: 011225ia STA: A.A.31 TOP: Set Theory

172 ANS: 3

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

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

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

$$3r = 87$$

$$r = 29$$

REF: 060812ia STA: A.A.7 TOP: Writing Linear Systems

173 ANS: 2

$$\frac{2y}{y+5} + \frac{10}{y+5} = \frac{2y+10}{y+5} = \frac{2(y+5)}{y+5} = 2$$

REF: 011230ia STA: A.A.17 TOP: Addition and Subtraction of Rationals

174 ANS: 4 REF: 080827ia STA: A.A.12 TOP: Powers of Powers

175 ANS: 3

$$25 - 18 = 7$$

REF: 060822ia STA: A.S.9 TOP: Frequency Histograms, Bar Graphs and Tables

176 ANS: 3 REF: fall0710ia STA: A.A.31 TOP: Set Theory

177 ANS: 4

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

$$-2x + 10 < 4$$

$$-2x < -6$$

$$x > 3$$

REF: 080913ia STA: A.A.21 TOP: Interpreting Solutions

178 ANS: 4 REF: 010929ia STA: A.S.6 TOP: Box-and-Whisker Plots

179 ANS: 1 REF: fall0728ia STA: A.A.15 TOP: Undefined Rationals

180 ANS: 2

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

REF: fall0720ia STA: A.G.6 TOP: Linear Inequalities

181 ANS: 4

The transformation is a reflection in the x -axis.

REF: 011206ia STA: A.G.5 TOP: Graphing Absolute Value Functions

182 ANS: 2 REF: 060908ia STA: A.S.21 TOP: Empirical Probability

183 ANS: 4

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

REF: 060815ia STA: A.A.18 TOP: Multiplication and Division of Rationals
KEY: multiplication

184 ANS: 2

The other sets of data are qualitative.

REF: 011211ia STA: A.S.1 TOP: Analysis of Data

185 ANS: 2

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

$$A \approx 42$$

REF: 060816ia STA: A.A.43 TOP: Using Trigonometry to Find an Angle

186 ANS: 2 REF: 010915ia STA: A.A.5 TOP: Modeling Equations

187 ANS: 2 REF: 080930ia STA: A.S.17 TOP: Scatter Plots

188 ANS: 2

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

REF: fall0718ia STA: A.A.16 TOP: Rational Expressions

KEY: $a > 0$

189 ANS: 4 REF: 060930ia STA: A.A.29 TOP: Set Theory

190 ANS: 2 REF: 080810ia STA: A.A.36 TOP: Parallel and Perpendicular Lines

191 ANS: 1 REF: 011202ia STA: A.A.9 TOP: Exponential Functions

192 ANS: 3

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

$$34 = x^2$$

$$\sqrt{34} = x$$

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

193 ANS: 3

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

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

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

REF: 010914ia STA: A.A.28 TOP: Roots of Quadratics

194 ANS: 1 REF: 080813ia STA: A.G.10

TOP: Identifying the Vertex of a Quadratic Given Graph

195 ANS: 4 REF: 011222ia STA: A.A.29 TOP: Set Theory

196 ANS: 2 REF: 060830ia STA: A.A.9 TOP: Exponential Functions

- 197 ANS: 4
 $SA = 2lw + 2hw + 2lh = 2(3)(1.5) + 2(2)(1.5) + 2(3)(2) = 27$
- REF: 060827ia STA: A.G.2 TOP: Surface Area
- 198 ANS: 1
 $-2x + 5 > 17$
 $-2x > 12$
 $x < -6$
- REF: fall0724ia STA: A.A.21 TOP: Interpreting Solutions
- 199 ANS: 2
 $s + o = 126$. $s + 2s = 126$
 $o = 2s$ $s = 42$
- REF: 080811ia STA: A.A.7 TOP: Writing Linear Systems
- 200 ANS: 4
 $\frac{\text{distance}}{\text{time}} = \frac{24}{6} = 4$
- REF: 010902ia STA: A.M.1 TOP: Speed
- 201 ANS: 4
 $\frac{(d \times 3) + (2 \times 2d)}{2 \times 3} = \frac{3d + 4d}{6} = \frac{7d}{6}$
- REF: fall0727ia STA: A.A.17 TOP: Addition and Subtraction of Rationals
- 202 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.
- REF: 010923ia STA: A.S.3 TOP: Analysis of Data
- 203 ANS: 1 REF: 080924ia STA: A.G.1 TOP: Compositions of Polygons and Circles
 KEY: perimeter
- 204 ANS: 2
 The median score, 10, is the vertical line in the center of the box.
- REF: fall0709ia STA: A.S.5 TOP: Box-and-Whisker Plots
- 205 ANS: 3 REF: 080925ia STA: A.G.4 TOP: Identifying the Equation of a Graph
- 206 ANS: 3
 An element of the domain, 1, is paired with two different elements of the range, 3 and 7.
- REF: 080919ia STA: A.G.3 TOP: Defining Functions

207 ANS: 1

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

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

$$4x < 36$$

$$x < 9$$

REF: 060914ia

STA: A.A.21

TOP: Interpreting Solutions

208 ANS: 1

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

$$c^2 = 289$$

$$c = 17$$

REF: 080906ia

STA: A.A.45

TOP: Pythagorean Theorem

209 ANS: 4

REF: fall0717ia

STA: A.G.4

TOP: Families of Functions

210 ANS: 3

$$\sin A = \frac{10}{16} \quad B = 180 - (90 + 38.7) = 51.3. \quad \text{A } 90^\circ \text{ angle is not acute.}$$

$$A \approx 38.7$$

REF: 080829ia

STA: A.A.43

TOP: Using Trigonometry to Find an Angle

Integrated Algebra Multiple Choice Regents Exam Questions Answer Section

211 ANS: 1

$$3(2m-1) \leq 4m+7$$

$$6m-3 \leq 4m+7$$

$$2m \leq 10$$

$$m \leq 5$$

REF: 081002ia STA: A.A.24 TOP: Solving Inequalities

212 ANS: 2 REF: 061023ia STA: A.A.23 TOP: Transforming Formulas

213 ANS: 2

$y - kx = 7$ may be rewritten as $y = kx + 7$

REF: 061015ia STA: A.A.38 TOP: Parallel and Perpendicular Lines

214 ANS: 1 REF: 061021ia STA: A.A.29 TOP: Set Theory

215 ANS: 3

Frequency is not a variable.

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

216 ANS: 1 REF: 061103ia STA: A.A.12 TOP: Division of Powers

217 ANS: 3 REF: 061003ia STA: A.A.13 TOP: Addition and Subtraction of Polynomials

KEY: addition

218 ANS: 2

$$36x^2 - 100y^6 = 4(9x^2 - 25y^6) = 4(3x + 5y^3)(3x - 5y^3)$$

REF: 081129ia STA: A.A.19 TOP: Factoring the Difference of Perfect Squares

219 ANS: 3

$$2(1)+3=5$$

REF: 061007ia STA: A.A.39 TOP: Linear Equations

220 ANS: 1

$$b = 2j + 4 \quad 2j + 4 = 31 - j$$

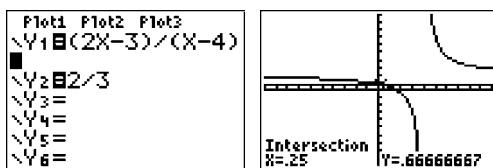
$$b + j = 31 \quad 3j = 27$$

$$b = 31 - j \quad j = 9$$

REF: 081119ia STA: A.A.7 TOP: Writing Linear Systems

221 ANS: 2

$$\frac{2x-3}{x-4} = \frac{2}{3}$$



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

$$6x-9 = 2x-8$$

$$4x = 1$$

$$x = \frac{1}{4}$$

REF: 081012ia STA: A.A.26 TOP: Solving Rationals

222 ANS: 4

$$-3x(x-4) - 2x(x+3) = -3x^2 + 12x - 2x^2 - 6x = -5x^2 + 6x$$

REF: 081114ia STA: A.A.13 TOP: Addition and Subtraction of Monomials

223 ANS: 4

$$s = \frac{d}{t} = \frac{150 \text{ m}}{1.5 \text{ min}} \cdot \frac{60 \text{ min}}{1 \text{ hr}} = 6,000 \frac{\text{m}}{\text{hr}}$$

REF: 061025ia STA: A.M.1 TOP: Speed

224 ANS: 3 REF: 011103ia STA: A.S.12 TOP: Scatter Plots

225 ANS: 1 REF: 081115ia STA: A.A.32 TOP: Slope

226 ANS: 2 REF: 061105ia STA: A.A.20 TOP: Factoring Polynomials

227 ANS: 2 REF: 011002ia STA: A.S.20 TOP: Theoretical Probability

228 ANS: 2 REF: 081104ia STA: A.S.14 TOP: Analysis of Data

229 ANS: 4 REF: 061001ia STA: A.A.30 TOP: Set Theory

230 ANS: 2

shaded = whole – unshaded

= rectangle-triangle

$$= lw - \frac{1}{2}bh$$

$$= 15 \times 6 - \frac{1}{2} \times 15 \times 4.6$$

$$= 90 - 34.5$$

$$= 55.5$$

REF: 081019ia STA: A.G.1 TOP: Compositions of Polygons and Circles

KEY: area

231 ANS: 1 REF: 081110ia STA: A.A.1 TOP: Expressions

232 ANS: 4

$$\frac{x}{x+4} \div \frac{2x}{x^2-16} = \frac{x}{x+4} \cdot \frac{x^2-16}{2x} = \frac{1}{x+4} \cdot \frac{(x+4)(x-4)}{2} = \frac{x-4}{2}$$

REF: 081130ia STA: A.A.18 TOP: Multiplication and Division of Rationals
KEY: division

233 ANS: 2

$$\left| \frac{55.42 - 50.27}{55.42} \right| \approx 0.093$$

REF: 081023ia STA: A.M.3 TOP: Error KEY: area

234 ANS: 1

$$1P + 2C = 5$$

$$1P + 4C = 6$$

$$2C = 1$$

$$C = 0.5$$

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

235 ANS: 3 REF: 061017ia STA: A.S.11 TOP: Quartiles and Percentiles

236 ANS: 2 REF: 061115ia STA: A.S.7 TOP: Scatter Plots

237 ANS: 4

The other sets of data are qualitative.

REF: 011116ia STA: A.S.1 TOP: Analysis of Data

238 ANS: 2

$$A(-3, 8) \text{ and } B(3, 6). \quad m = \frac{8-6}{-3-3} = \frac{2}{-6} = -\frac{1}{3}$$

REF: 081005ia STA: A.A.33 TOP: Slope

239 ANS: 3

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

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

$$3 = -2 + b$$

$$5 = b$$

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

240 ANS: 3 REF: 061101ia STA: A.A.19

TOP: Factoring the Difference of Perfect Squares

241 ANS: 2 REF: 061122ia STA: A.S.14 TOP: Analysis of Data

242 ANS: 2

$$\cos 38 = \frac{10}{x}$$

$$x = \frac{10}{\cos 38} \approx 12.69$$

REF: 081126ia STA: A.A.44 TOP: Using Trigonometry to Find a Side

243 ANS: 4

$$5(x+4) = 5x+20$$

REF: 081013ia STA: A.A.1 TOP: Expressions

244 ANS: 4

$$\frac{ey}{n} + k = t$$

$$\frac{ey}{n} = t - k$$

$$y = \frac{n(t-k)}{e}$$

REF: 011125ia STA: A.A.23 TOP: Transforming Formulas

245 ANS: 2

$$\tan B = \frac{\text{opposite}}{\text{adjacent}} = \frac{8}{15} = 0.5\bar{3}$$

REF: 081026ia STA: A.A.42 TOP: Trigonometric Ratios

246 ANS: 4

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

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

247 ANS: 2

$$A = lw + \frac{\pi r^2}{2} = 6 \cdot 5 + \frac{\pi \cdot 3^2}{2} \approx 44.1$$

REF: 061029ia STA: A.G.1 TOP: Compositions of Polygons and Circles

KEY: area

248 ANS: 4

$$-6x - 17 \geq 8x + 25$$

$$-42 \geq 14x$$

$$-3 \geq x$$

REF: 081121ia STA: A.A.24 TOP: Solving Inequalities

249 ANS: 1

REF: 011001ia STA: A.S.6 TOP: Box-and-Whisker Plots

250 ANS: 1

Asking school district employees about a school board candidate produces the most bias.

REF: 061107ia STA: A.S.3 TOP: Analysis of Data

251 ANS: 2 REF: 061121ia STA: A.A.3 TOP: Expressions

252 ANS: 4

$$2x - 3y = 9$$

$$2(0) - 3(-3) = 9$$

$$0 + 9 = 9$$

REF: 081016ia STA: A.A.39 TOP: Identifying Points on a Line

253 ANS: 2

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

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

$$x = 3 \quad x = 2$$

REF: 081120ia STA: A.A.28 TOP: Roots of Quadratics

254 ANS: 4

The other situations are quantitative.

REF: 081122ia STA: A.S.1 TOP: Analysis of Data

255 ANS: 2

$$20000(.88)^3 = 13629.44$$

REF: 061124ia STA: A.A.9 TOP: Exponential Functions

256 ANS: 1

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

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

257 ANS: 1

$$\sin x = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{28}{53}$$

REF: 011109ia STA: A.A.42 TOP: Trigonometric Ratios

258 ANS: 3

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

REF: 011008ia STA: A.A.42 TOP: Trigonometric Ratios

259 ANS: 3 REF: 081103ia STA: A.A.30 TOP: Set Theory

260 ANS: 4 REF: 011111ia STA: A.G.8 TOP: Solving Quadratics by Graphing

261 ANS: 1

$$-3(-4)^2(2) + 4(-4) = -96 - 16 = -112$$

REF: 081113ia STA: A.N.6 TOP: Evaluating Expressions

262 ANS: 1 REF: 061010ia STA: A.A.40 TOP: Systems of Linear Inequalities

263 ANS: 4 REF: 081107ia STA: A.A.5 TOP: Modeling Inequalities

264 ANS: 2 REF: 061127ia STA: A.N.4 TOP: Operations with Scientific Notation

265 ANS: 3 REF: 011117ia STA: A.G.4 TOP: Graphing Absolute Value Functions

266 ANS: 2 REF: 081127ia STA: A.A.40 TOP: Systems of Linear Inequalities

267 ANS: 3 REF: 081008ia STA: A.A.19

TOP: Factoring the Difference of Perfect Squares

268 ANS: 3

$$\frac{x}{3} + \frac{x+1}{2} = x$$

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

$$5x + 3 = 6x$$

$$3 = x$$

REF: 061019ia STA: A.A.25 TOP: Solving Equations with Fractional Expressions

269 ANS: 4 REF: 011025ia STA: A.A.17 TOP: Addition and Subtraction of Rationals

270 ANS: 4

$$\frac{2+3+0+1+3+2+4+0+2+3}{10} = \frac{20}{10} = 2 \quad \frac{x}{10} = 2 + 0.5$$

$$x = 25$$

REF: 081020ia STA: A.S.16 TOP: Average Known with Missing Data

271 ANS: 4



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

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

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

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

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

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

REF: 011028ia STA: A.A.26 TOP: Solving Rationals

272 ANS: 1

$$2y - 2x = 10 \quad \text{axis of symmetry: } x = \frac{-b}{2a} = \frac{-2}{2(1)} = -1$$

$$2y = 2x + 10$$

$$y = x + 5$$

REF: 081010ia STA: A.G.9 TOP: Quadratic-Linear Systems

273 ANS: 1 REF: 011004ia STA: A.A.31 TOP: Set Theory

274 ANS: 3

$$\frac{15}{15 + 13 + 12} = \frac{15}{40} = \frac{3}{8}$$

REF: 061006ia STA: A.S.21 TOP: Experimental Probability

275 ANS: 4 REF: 061111ia STA: A.G.4 TOP: Families of Functions

276 ANS: 2

$$\tan A = \frac{\text{opposite}}{\text{adjacent}} = \frac{14}{48}$$

REF: 061009ia STA: A.A.42 TOP: Trigonometric Ratios

277 ANS: 4 REF: 081022ia STA: A.A.29 TOP: Set Theory

278 ANS: 4 REF: 061013ia STA: A.G.3 TOP: Defining Functions

279 ANS: 2

$$2000(1 + 0.04)^3 \approx 2249$$

REF: 081124ia STA: A.A.9 TOP: Exponential Functions

280 ANS: 1

$$2(x - 4) = 4(2x + 1)$$

$$2x - 8 = 8x + 4$$

$$-12 = 6x$$

$$-2 = x$$

REF: 011106ia STA: A.A.22 TOP: Solving Equations

281 ANS: 3 REF: 081117ia STA: A.A.29 TOP: Set Theory

282 ANS: 3

$$x^2 - 9 = 0$$

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

$$x = \pm 3$$

REF: 061014ia STA: A.A.15 TOP: Undefined Rationals

283 ANS: 2

$$x^2 - 2x - 15 = 0$$

$$(x - 5)(x + 3) = 0$$

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

REF: 011128ia STA: A.A.28 TOP: Roots of Quadratics

284 ANS: 3

$$V = \pi r^2 h = \pi \cdot 5^2 \cdot 2.3 \approx 180.6$$

REF: 081105ia STA: A.G.2 TOP: Volume

285 ANS: 4 REF: 061123ia STA: A.A.31 TOP: Set Theory

286 ANS: 4

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

REF: 011105ia STA: A.G.3 TOP: Defining Functions

287 ANS: 4

$${}_5P_5 = 5 \times 4 \times 3 \times 2 \times 1 = 120$$

REF: 061109ia STA: A.N.8 TOP: Permutations

288 ANS: 2

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

$$2x + y = 8$$

$$2x - 6y = -6$$

$$7y = 14$$

$$y = 2$$

REF: 081021ia STA: A.A.10 TOP: Solving Linear Systems

289 ANS: 2

$$\tan ABC = \frac{\text{opposite}}{\text{adjacent}} = \frac{5}{12}$$

REF: 081112ia STA: A.A.42 TOP: Trigonometric Ratios

290 ANS: 1 REF: 011126ia STA: A.A.13 TOP: Addition and Subtraction of Polynomials

KEY: subtraction

291 ANS: 3

$$P(\text{odd}) = \frac{3}{6}, P(\text{prime}) = \frac{3}{6}, P(\text{perfect square}) = \frac{2}{6}, P(\text{even}) = \frac{3}{6}$$

REF: 061104ia STA: A.S.22 TOP: Geometric Probability

292 ANS: 4

$$\frac{7}{12x} - \frac{y}{6x^2} = \frac{42x^2 - 12xy}{72x^3} = \frac{6x(7x - 2y)}{72x^3} = \frac{7x - 2y}{12x^2}$$

REF: 061129ia STA: A.A.17 TOP: Addition and Subtraction of Rationals

293 ANS: 4

$$\frac{150}{20} = \frac{x}{30}$$

$$20x = 4500$$

$$x = 225$$

REF: 081101ia STA: A.N.5 TOP: Direct Variation

294 ANS: 2 REF: 081003ia STA: A.A.31 TOP: Set Theory

295 ANS: 1

$$x = \frac{-b}{2a} = \frac{-6}{2(-1)} = 3.$$

REF: 011127ia STA: A.A.41 TOP: Identifying the Vertex of a Quadratic Given Equation

296 ANS: 1 REF: 081015ia STA: A.G.5 TOP: Graphing Quadratic Functions

297 ANS: 2 REF: 011019ia STA: A.S.12 TOP: Scatter Plots

298 ANS: 2 REF: 061027ia STA: A.A.20 TOP: Factoring Polynomials

299 ANS: 2 REF: 061113ia STA: A.G.5 TOP: Graphing Quadratic Functions

300 ANS: 3

$$x = \frac{-b}{2a} = \frac{-10}{2(-1)} = 5.$$

REF: 081018ia STA: A.A.41 TOP: Identifying the Vertex of a Quadratic Given Equation

301 ANS: 2

Candidate *B* received 45%. $45\% \times 1860 = 837$

REF: 081007ia STA: A.N.5 TOP: Percents

302 ANS: 2

$$m = \frac{-A}{B} = \frac{-3}{-7} = \frac{3}{7}$$

REF: 011122ia STA: A.A.37 TOP: Slope

303 ANS: 3

$$2x - 5y = 11 \quad 2x - 5(-1) = 11$$

$$-2x + 3y = -9 \quad 2x = 6$$

$$-2y = 2 \quad x = 3$$

$$y = -1$$

REF: 081109ia STA: A.A.10 TOP: Solving Linear Systems

304 ANS: 4 REF: 011020ia STA: A.A.12 TOP: Multiplication of Powers

305 ANS: 3 REF: 081009ia STA: A.A.30 TOP: Set Theory

306 ANS: 1

$$7 + 8 + 7 + \frac{12\pi}{2} = 22 + 6\pi$$

REF: 081128ia STA: A.G.1 TOP: Compositions of Polygons and Circles

KEY: perimeter

307 ANS: 3

$$\frac{(12.3 \times 11.9) - (12.2 \times 11.8)}{12.3 \times 11.9} \approx 0.0165$$

REF: 061120ia STA: A.M.3 TOP: Error KEY: area

308 ANS: 1

$$4y - 2x = 0$$

$$4(-1) - 2(-2) = 0$$

$$-4 + 4 = 0$$

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

309 ANS: 2

$$\sin 57 = \frac{x}{8}$$

$$x \approx 6.7$$

REF: 061108ia STA: A.A.44 TOP: Using Trigonometry to Find a Side

310 ANS: 2

$$\frac{3}{2x} + \frac{7}{4x} = \frac{12x + 14x}{8x^2} = \frac{26x}{8x^2} = \frac{13}{4x}$$

REF: 011120ia STA: A.A.17 TOP: Addition and Subtraction of Rationals

311 ANS: 3

$$\sqrt{72} - 3\sqrt{2} = \sqrt{36}\sqrt{2} - 3\sqrt{2} = 6\sqrt{2} - 3\sqrt{2} = 3\sqrt{2}$$

REF: 061008ia STA: A.N.3 TOP: Operations with Radicals

KEY: subtraction

312 ANS: 2 REF: 011005ia STA: A.A.5 TOP: Modeling Inequalities

313 ANS: 2

$$m = \frac{5-3}{8-1} = \frac{2}{7} \quad y - y_1 = m(x - x_1)$$

$$y - 5 = \frac{2}{7}(x - 8)$$

REF: 081029ia STA: A.A.35 TOP: Writing Linear Equations

- 314 ANS: 4
 ${}_8P_3 = 336$
 REF: 061026ia STA: A.N.8 TOP: Permutations
- 315 ANS: 1
 $x^2 - 36 = 5x$
 $x^2 - 5x - 36 = 0$
 $(x - 9)(x + 4) = 0$
 $x = 9$
 REF: 061020ia STA: A.A.8 TOP: Writing Quadratics
- 316 ANS: 2
 $R = 0.5^{d-1}$
 REF: 011006ia STA: A.A.9 TOP: Exponential Functions
- 317 ANS: 4
 $\frac{9.2 \times 10^6}{2.3 \times 10^2} = 4 \times 10^4$
 REF: 081006ia STA: A.N.4 TOP: Operations with Scientific Notation
- 318 ANS: 3
 $m = \frac{6-4}{3-(-2)} = \frac{2}{5}$
 REF: 061110ia STA: A.A.33 TOP: Slope
- 319 ANS: 2
 $\sqrt{18.4^2 - 7^2} \approx 17$
 REF: 011107ia STA: A.A.45 TOP: Pythagorean Theorem
- 320 ANS: 3
 $10^2 + 10^2 = c^2$
 $c^2 = 200$
 $c \approx 14.1$
 REF: 061102ia STA: A.A.45 TOP: Pythagorean Theorem
- 321 ANS: 1 REF: 011101ia STA: A.A.31 TOP: Set Theory
- 322 ANS: 2 REF: 011023ia STA: A.A.40 TOP: Systems of Linear Inequalities

323 ANS: 2

$$l(l-3) = 40$$

$$l^2 - 3l - 40 = 0$$

$$(l-8)(l+5) = 0$$

$$l = 8$$

REF: 081116ia

STA: A.A.8

TOP: Geometric Applications of Quadratics

324 ANS: 3

$${}_6P_4 = 360$$

REF: 081028ia

STA: A.N.8

TOP: Permutations

325 ANS: 2

$$\left| \frac{13.5 - 12.8}{13.5} \right| \approx 0.093$$

REF: 081123ia

STA: A.M.3

TOP: Error

KEY: area

326 ANS: 3

$$P(S) \cdot P(M) = P(S \text{ and } M)$$

$$\frac{3}{5} \cdot P(M) = \frac{3}{10}$$

$$P(M) = \frac{1}{2}$$

REF: 081024ia

STA: A.S.23

TOP: Theoretical Probability

KEY: independent events

327 ANS: 2

In (2), each element in the domain corresponds to a unique element in the range.

REF: 061116ia

STA: A.G.3

TOP: Defining Functions

328 ANS: 1

REF: 061024ia

STA: A.A.17

TOP: Addition and Subtraction of Rationals

329 ANS: 3

$$3\sqrt{250} = 3\sqrt{25}\sqrt{10} = 15\sqrt{10}$$

REF: 061106ia

STA: A.N.2

TOP: Simplifying Radicals

330 ANS: 3

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

REF: 081027ia

STA: A.A.17

TOP: Addition and Subtraction of Rationals

331 ANS: 4

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

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

$$x = 6 \quad x = -2$$

REF: 061125ia STA: A.A.15 TOP: Undefined Rationals

332 ANS: 1

$$\frac{2x}{3} + \frac{1}{2} = \frac{5}{6}$$

$$\frac{2x}{3} = \frac{1}{3}$$

$$6x = 3$$

$$x = \frac{1}{2}$$

REF: 011112ia STA: A.A.25 TOP: Solving Equations with Fractional Expressions

333 ANS: 2 REF: 011012ia STA: A.G.9 TOP: Quadratic-Linear Systems

334 ANS: 4

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

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

335 ANS: 4 REF: 011016ia STA: A.A.23 TOP: Transforming Formulas

336 ANS: 3

$$c + 3d = 8 \quad c = 4d - 6$$

$$4d - 6 + 3d = 8 \quad c = 4(2) - 6$$

$$7d = 14 \quad c = 2$$

$$d = 2$$

REF: 061012ia STA: A.A.10 TOP: Solving Linear Systems

337 ANS: 1

$$15000(1.2)^{\frac{6}{3}} = 21,600. \quad 21,600 - 15,000 = 6,600$$

REF: 061030ia STA: A.A.9 TOP: Exponential Functions

338 ANS: 4 REF: 061112ia STA: A.A.36 TOP: Parallel and Perpendicular Lines

339 ANS: 2

$$m = \frac{5-2}{3-(-2)} = \frac{3}{5}$$

REF: 061004ia STA: A.A.33 TOP: Slope

340 ANS: 2 REF: 011015ia STA: A.G.10

TOP: Identifying the Vertex of a Quadratic Given Graph

341 ANS: 1 REF: 081102ia STA: A.S.12 TOP: Scatter Plots

342 ANS: 4

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

REF: 011024ia STA: A.N.3 TOP: Operations with Radicals
KEY: addition

343 ANS: 2

REF: 061128ia STA: A.A.29 TOP: Set Theory

344 ANS: 3

REF: 061011ia STA: A.S.2 TOP: Analysis of Data

345 ANS: 3

$$3\sqrt{2} + \sqrt{8} = 3\sqrt{2} + \sqrt{4} \sqrt{2} = 3\sqrt{2} + 2\sqrt{2} = 5\sqrt{2}$$

REF: 011121ia STA: A.N.3 TOP: Operations with Radicals
KEY: addition

346 ANS: 4

REF: 011102ia STA: A.G.9 TOP: Quadratic-Linear Systems

347 ANS: 2

$$A = lw + lw + \frac{\pi r^2}{4} = 5 \cdot 3 + 5 \cdot 3 + \frac{\pi \cdot 3^2}{4} \approx 37$$

REF: 011123ia STA: A.G.1 TOP: Compositions of Polygons and Circles
KEY: area

348 ANS: 4

$$5 \times 2 \times 3 = 30$$

REF: 061002ia STA: A.N.7 TOP: Multiplication Counting Principle

349 ANS: 3

$$\frac{(10w^3)^2}{5w} = \frac{100w^6}{5w} = 20w^5$$

REF: 011124ia STA: A.A.12 TOP: Powers of Powers

350 ANS: 1

REF: 061005ia STA: A.G.10

TOP: Identifying the Vertex of a Quadratic Given Graph

351 ANS: 2

REF: 011022ia STA: A.A.19

TOP: Factoring the Difference of Perfect Squares

352 ANS: 2

REF: 011027ia STA: A.A.3 TOP: Expressions

353 ANS: 4

REF: 011114ia STA: A.N.1 TOP: Properties of Reals

354 ANS: 1

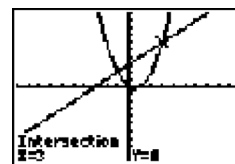
$$y = mx + b$$

$$5 = (-2)(1) + b$$

$$b = 7$$

REF: 081108ia STA: A.A.34 TOP: Writing Linear Equations

355 ANS: 2



$x^2 - x = x + 3$. Since $y = x + 3$, the solutions are (3,6) and (-1,2).

$$x^2 - 2x - 3 = 0$$

$$(x - 3)(x + 1) = 0$$

$$x = 3 \text{ or } -1$$

REF: 061118ia STA: A.A.11 TOP: Quadratic-Linear Systems

356 ANS: 3

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

REF: 011011ia STA: A.A.14 TOP: Division of Polynomials

357 ANS: 3

$$P(O) = \frac{5}{10}, P(P) = \frac{4}{10}, P(\leq 5) = \frac{6}{10}, P(3) = \frac{4}{10}$$

REF: 081125ia STA: A.S.22 TOP: Theoretical Probability

358 ANS: 2 REF: 011119ia STA: A.A.29 TOP: Set Theory

359 ANS: 1

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

REF: 011010ia STA: A.N.6 TOP: Evaluating Expressions

360 ANS: 2 REF: 011110ia STA: A.N.6 TOP: Evaluating Expressions

361 ANS: 3

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

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

362 ANS: 2 REF: 081111ia STA: A.G.10

TOP: Identifying the Vertex of a Quadratic Given Graph

363 ANS: 4 REF: 081025ia STA: A.G.4 TOP: Families of Functions

364 ANS: 3 REF: 081001ia STA: A.S.7 TOP: Scatter Plots

365 ANS: 4 REF: 061016ia STA: A.A.2 TOP: Expressions

366 ANS: 4 REF: 061018ia STA: A.A.12 TOP: Division of Powers

367 ANS: 3 REF: 061119ia STA: A.A.2 TOP: Expressions

368 ANS: 1 REF: 081030ia STA: A.A.3 TOP: Expressions

369 ANS: 4 REF: 061022ia STA: A.S.3 TOP: Analysis of Data

370 ANS: 3

$$75 - 15 = 60$$

REF: 011113ia STA: A.S.6 TOP: Box-and-Whisker Plots

371 ANS: 2
 $\sqrt{5^2 + 7^2} \approx 8.6$

REF: 081004ia STA: A.A.45 TOP: Pythagorean Theorem

372 ANS: 3

mean = $81\frac{7}{11}$, median = 81 and mode = 76

REF: 011118ia STA: A.S.4 TOP: Central Tendency

373 ANS: 3 REF: 081017a STA: A.S.14 TOP: Analysis of Data

374 ANS: 3 REF: 011017ia STA: A.G.5 TOP: Graphing Absolute Value Functions

375 ANS: 2 REF: 081014ia STA: A.A.36 TOP: Parallel and Perpendicular Lines

376 ANS: 4 REF: 061130ia STA: A.A.13 TOP: Addition and Subtraction of Polynomials

KEY: subtraction

377 ANS: 2 REF: 081106ia STA: A.S.6 TOP: Box-and-Whisker Plots

378 ANS: 2

$$J - M = 3$$

$$8J + 8M = 120$$

$$8J - 8M = 24$$

$$16J = 144$$

$$J = 9$$

REF: 011115ia STA: A.A.7 TOP: Writing Linear Systems

379 ANS: 2

Debbie failed to distribute the 3 properly.

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

380 ANS: 1 REF: 061114ia STA: A.A.43 TOP: Using Trigonometry to Find an Angle

381 ANS: 4 REF: 081011ia STA: A.A.5 TOP: Modeling Equations

382 ANS: 1

$$\frac{12.8 + 17.2}{3 + 5} = 3.75$$

REF: 061117ia STA: A.M.1 TOP: Speed

383 ANS: 2

$$a^3 - 4a = a(a^2 - 4) = a(a - 2)(a + 2)$$

REF: 011108ia STA: A.A.19 TOP: Factoring the Difference of Perfect Squares

384 ANS: 4 REF: 061028ia STA: A.G.6 TOP: Linear Inequalities

385 ANS: 3 REF: 011104ia STA: A.A.1 TOP: Expressions

386 ANS: 1

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

REF: 011130ia STA: A.A.16 TOP: Rational Expressions

KEY: $a > 0$

387 ANS: 3 REF: 081118ia STA: A.G.4 TOP: Families of Functions

388 ANS: 1

$$f + m = 53$$

$$f - m = 25$$

$$2m = 28$$

$$m = 14$$

REF: 061126ia STA: A.A.7 TOP: Writing Linear Systems

389 ANS: 4

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

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

390 ANS: 3

$$\frac{3+2+4+3}{20} = \frac{12}{20}$$

REF: 011129ia STA: A.S.21 TOP: Experimental Probability

Integrated Algebra 2 Point Regents Exam Questions Answer Section

391 ANS:

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

PTS: 2

REF: 080932ia

STA: A.G.2

TOP: Volume

392 ANS:

$$-3\sqrt{48} = -3\sqrt{16}\sqrt{3} = -12\sqrt{3}$$

PTS: 2

REF: 081033ia

STA: A.N.2

TOP: Simplifying Radicals

393 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: Geometric Probability

394 ANS:

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

$$A \approx 53$$

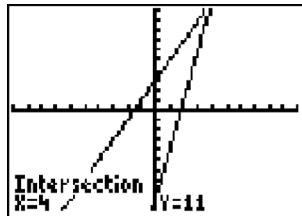
PTS: 2

REF: 011032ia

STA: A.A.43

TOP: Using Trigonometry to Find an Angle

395 ANS:



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

$$12 = 3g$$

$$g = 4$$

PTS: 2

REF: fall0732ia

STA: A.A.22

TOP: Solving Equations

396 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

KEY: perimeter

397 ANS:

$$\{1, 2, 4, 5, 9, 10, 12\}$$

PTS: 2

REF: 080833ia

STA: A.A.30

TOP: Set Theory

398 ANS:

$$\frac{6}{25} \cdot \frac{25 - (11 + 5 + 3)}{25}$$

PTS: 2 REF: 011232ia STA: A.S.21 TOP: Experimental Probability

399 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

400 ANS:

$$\frac{x^2 - 5x - 24}{x - 8} = \frac{(x - 8)(x + 3)}{x - 8} = x + 3$$

PTS: 2 REF: 061131ia STA: A.A.16 TOP: Rational Expressions
KEY: $a > 0$

401 ANS:

$$\frac{600 - 592}{592} \approx 0.014$$

PTS: 2 REF: 061031ia STA: A.M.3 TOP: Error
KEY: volume and surface area

402 ANS:

$$30\sqrt{2} \cdot 5\sqrt{72} = 5\sqrt{36}\sqrt{2} = 30\sqrt{2}$$

PTS: 2 REF: fall0731ia STA: A.N.2 TOP: Simplifying Radicals

403 ANS:

 $-6a + 42$. distributive

PTS: 2 REF: 061032ia STA: A.N.1 TOP: Properties of Reals

404 ANS:

$$0 \leq t \leq 40$$

PTS: 2 REF: 060833ia STA: A.A.31 TOP: Set Theory

405 ANS:

$$2.1. \cos 65 = \frac{x}{5}$$

$$x \approx 2.1$$

PTS: 2 REF: 011133ia STA: A.A.44 TOP: Using Trigonometry to Find a Side

406 ANS:

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

PTS: 2 REF: 010932ia STA: A.A.12 TOP: Division of Powers

407 ANS:

$$5. 48 \text{ inches} \times \frac{1 \text{ yard}}{36 \text{ inches}} = \frac{4}{3} \text{ yards} \times \$3.75 = \$5.00$$

PTS: 2 REF: 011131ia STA: A.M.2 TOP: Conversions

408 ANS:

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

PTS: 2 REF: 011031ia STA: A.M.2 TOP: Conversions

409 ANS:

$$bc + ac = ab$$

$$c(b + a) = ab$$

$$c = \frac{ab}{b + a}$$

PTS: 2 REF: 081131ia STA: A.A.23 TOP: Transforming Formulas

410 ANS:

$$3a^2b^2 - 6a \cdot \frac{45a^4b^3 - 90a^3b}{15a^2b} = \frac{45a^4b^3}{15a^2b} - \frac{90a^3b}{15a^2b} = 3a^2b^2 - 6a$$

PTS: 2 REF: 081031ia STA: A.A.14 TOP: Division of Polynomials

411 ANS:

$$77120 + 33500 = 110620 \text{ sq. ft.} \times \frac{1 \text{ acre}}{43560 \text{ sq. ft.}} \approx 2.54 \text{ acres}$$

PTS: 2 REF: 081133ia STA: A.M.2 TOP: Conversions

412 ANS:

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

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

413 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

414 ANS:

$$60. {}_5P_3 = 60$$

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

415 ANS:

(1) Distributive; (2) Commutative

PTS: 2 REF: 061132ia STA: A.N.1 TOP: Identifying Properties

416 ANS:

$$\text{Ann's. } \frac{225}{15} = 15 \text{ mpg is greater than } \frac{290}{23.2} = 12.5 \text{ mpg}$$

PTS: 2 REF: 060831ia STA: A.M.1 TOP: Using Rate

417 ANS:

$$x = 1; (1, -5)$$

PTS: 2 REF: 061133ia STA: A.G.10
TOP: Identifying the Vertex of a Quadratic Given Graph

418 ANS:

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

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

419 ANS:

$$147.75 \quad 2 \times 5.5 \times 3 + 2 \times 6.75 \times 3 + 2 \times 5.5 \times 6.75 = 147.75$$

PTS: 2 REF: 011231ia STA: A.G.2 TOP: Surface Area

420 ANS:

$$2,160 \quad \frac{1,200}{25} = \frac{x}{45}$$

$$25x = 54,000$$

$$x = 2,160$$

PTS: 2 REF: 081032ia STA: A.M.1 TOP: Using Rate

421 ANS:

$$\sin x = \frac{30}{50}$$

$$x = \sin^{-1} \frac{3}{5}$$

$$x \approx 37$$

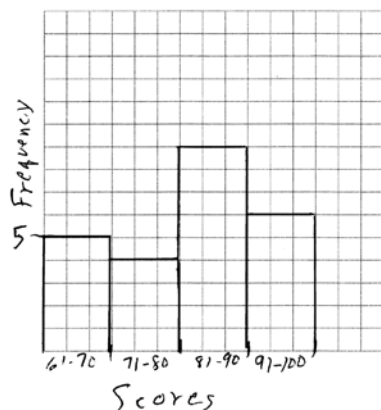
PTS: 2 REF: 061033ia STA: A.A.43 TOP: Using Trigonometry to Find an Angle

422 ANS:

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

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

423 ANS:



PTS: 2 REF: 081132ia STA: A.S.5
 TOP: Frequency Histograms, Bar Graphs and Tables

KEY: frequency histograms

424 ANS:

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

PTS: 2 REF: 010931ia STA: A.G.1
 KEY: perimeter

TOP: Compositions of Polygons and Circles

425 ANS:

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

PTS: 2 REF: 011233ia STA: A.A.16
 KEY: $a > 0$

TOP: Rational Expressions

426 ANS:

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

PTS: 2 REF: 060932ia STA: A.A.19
 TOP: Factoring the Difference of Perfect Squares

427 ANS:

$$\frac{1375}{1600} \cdot \frac{40^2 - 15^2}{40^2} = \frac{1375}{1600}$$

PTS: 2 REF: 011132ia STA: A.S.20

TOP: Geometric Probability

428 ANS:

$$111.25 \cdot \frac{\text{distance}}{\text{time}} = \frac{89}{0.8} = 111.25$$

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

TOP: Speed

429 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

KEY: area

Integrated Algebra 3 Point Regents Exam Questions Answer Section

430 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

431 ANS:

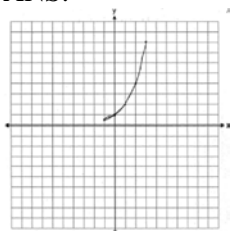
$$-15, 2 \quad x^2 + 13x - 30 = 0$$

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

$$x = -15, 2$$

PTS: 3 REF: 081036ia STA: A.A.28 TOP: Roots of Quadratics

432 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: Graphing Exponential Functions

433 ANS:

81.3, 80, both increase

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

434 ANS:

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

$$x \geq 6.\bar{53}$$

PTS: 3 REF: fall0735ia STA: A.A.6 TOP: Modeling Inequalities

435 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

436 ANS:

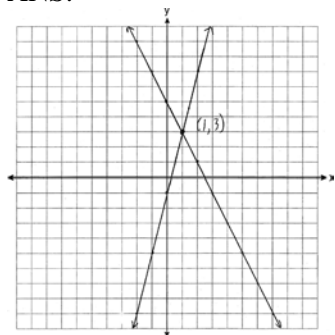
$$y = \frac{2}{5}x + 2. \quad m = \frac{4 - 0}{5 - (-5)} = \frac{2}{5}. \quad y = mx + b$$

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

$$b = 2$$

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

437 ANS:



PTS: 3

REF: 011235ia

STA: A.G.7

TOP: Solving Linear Systems

438 ANS:

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

(-2, 11).

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

PTS: 3

REF: 080934ia

STA: A.A.41

TOP: Identifying the Vertex of a Quadratic Given Equation

439 ANS:

$$4, -5. \quad \frac{x+2}{6} = \frac{3}{x-1}$$

$$(x+2)(x-1) = 18$$

$$x^2 - x + 2x - 2 = 18$$

$$x^2 + x - 20 = 0$$

$$(x+5)(x-4) = 0$$

$$x = -5 \text{ or } 4$$

PTS: 3

REF: 011136ia

STA: A.A.26

TOP: Solving Rationals

440 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

KEY: division

441 ANS:

$$y = \frac{3}{4}x + 10. \quad y = mx + b$$

$$4 = \frac{3}{4}(-8) + b$$

$$4 = -6 + b$$

$$10 = b$$

PTS: 3 REF: 011134ia STA: A.A.34 TOP: Writing Linear Equations

442 ANS:

12, 7. Both the median and the mode will increase.

PTS: 3 REF: 061134ia STA: A.S.16 TOP: Central Tendency

443 ANS:

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

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

444 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.28 TOP: Roots of Quadratics

445 ANS:

$$-12. \quad 3 \left(\frac{2}{3}x + 3 < -2x - 7 \right)$$

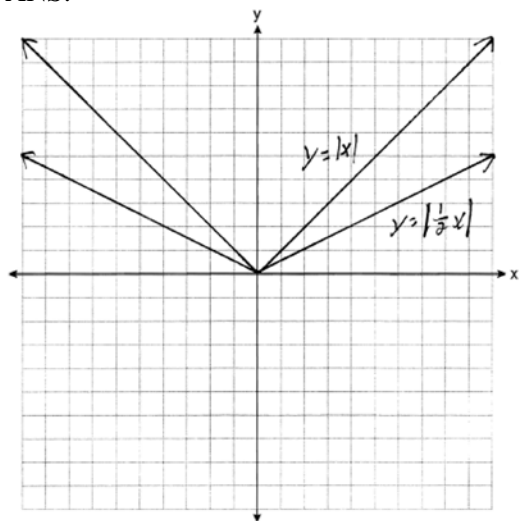
$$x + 9 < -6x - 21$$

$$7x < -30$$

$$x < \frac{-30}{7}$$

PTS: 3 REF: 061034ia STA: A.A.21 TOP: Interpreting Solutions

446 ANS:



. Graph becomes wider as the coefficient approaches 0.

PTS: 3

REF: 061035ia

STA: A.G.5

TOP: Graphing Absolute Value Functions

447 ANS:

$$-2\sqrt{3} \frac{16\sqrt{21}}{2\sqrt{7}} - 5\sqrt{12} = 8\sqrt{3} - 5\sqrt{4}\sqrt{3} = 8\sqrt{3} - 10\sqrt{3} = -2\sqrt{3}$$

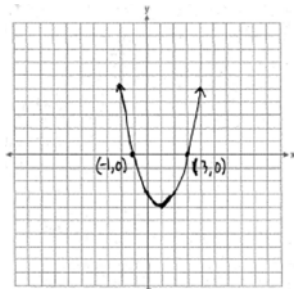
PTS: 3

REF: 081136ia

STA: A.N.3

TOP: Operations with Radicals

448 ANS:



PTS: 3

REF: 060836ia

STA: A.G.8

TOP: Solving Quadratics by Graphing

449 ANS:

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

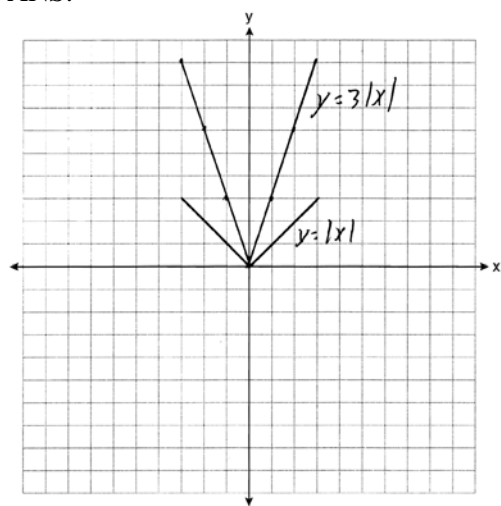
PTS: 3

REF: 080936ia

STA: A.M.1

TOP: Speed

450 ANS:

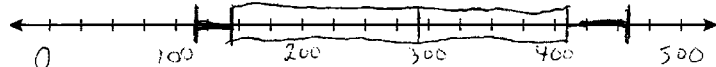


The graph becomes steeper.

PTS: 3 REF: 081134ia STA: A.G.5 TOP: Graphing Absolute Value Functions

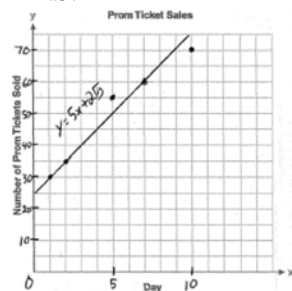
451 ANS:

minimum is 120, 1st quartile is 145, median is 292, 3rd quartile is 407, and maximum is 452



PTS: 3 REF: 081034ia STA: A.S.5 TOP: Box-and-Whisker Plots

452 ANS:



PTS: 3 REF: 060936ia STA: A.S.8 TOP: Scatter Plots

453 ANS:

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

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

KEY: area

454 ANS:

56. If the circumference of circle O is 16π 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

KEY: area

455 ANS:

$$0.65x + 35 \leq 45$$

$$0.65x \leq 10$$

$$x \leq 15$$

PTS: 3

REF: 061135ia

STA: A.A.6

TOP: Modeling Inequalities

456 ANS:

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

$$2(x^2 - 4x + 3x - 12) + 10(x-4) + 10(x+3)$$

$$2x^2 - 2x - 24 + 10x - 40 + 10x + 30$$

$$2x^2 + 18x - 34$$

PTS: 3

REF: 061136ia

STA: A.G.2

TOP: Surface Area

457 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

458 ANS:

$$2(x-4) \geq \frac{1}{2}(5-3x)$$

$$4(x-4) \geq 5-3x$$

$$4x-16 \geq 5-3x$$

$$7x \geq 21$$

$$x \geq 3$$

PTS: 3

REF: 011234ia

STA: A.A.24

TOP: Solving Inequalities

459 ANS:

$$80, 136 \quad V = lwh = 10 \cdot 2 \cdot 4 = 80 \quad SA = 2lw + 2hw + 2lh = 2 \cdot 10 \cdot 2 + 2 \cdot 4 \cdot 2 + 2 \cdot 10 \cdot 4 = 136$$

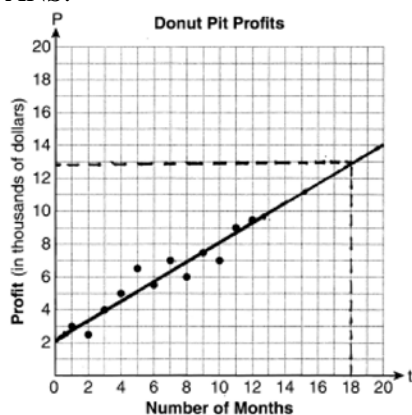
PTS: 3

REF: 081035ia

STA: A.G.2

TOP: Surface Area

460 ANS:



They will not reach their goal in 18 months.

PTS: 3 REF: 061036ia STA: A.S.17 TOP: Scatter Plots

461 ANS:

$$41.8. \sin x = \frac{8}{12}$$

$$A \approx 41.8$$

PTS: 3 REF: 081135ia STA: A.A.43 TOP: Using Trigonometry to Find an Angle

462 ANS:

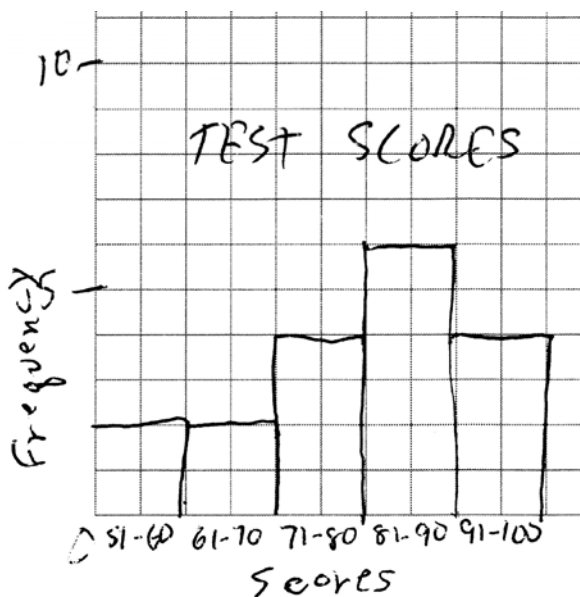
$$0.102. \frac{(5.3 \times 8.2 \times 4.1) - (5 \times 8 \times 4)}{5.3 \times 8.2 \times 4.1} = \frac{178.16 - 160}{178.16} = 0.102$$

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

KEY: volume and surface area

463 ANS:

Interval	Tally	Frequency
51-60		2
61-70		2
71-80		4
81-90		6
91-100		4



PTS: 3 REF: 011135ia STA: A.S.5

TOP: Frequency Histograms, Bar Graphs and Tables

KEY: frequency histograms

464 ANS:

The turtle won by .5 minutes. Turtle: $\frac{d}{s} = \frac{100}{20} = 5$. Rabbit: $\frac{d}{s} = \frac{100}{40} = 2.5 + 3 = 5.5$

PTS: 3 REF: 011236ia STA: A.M.1 TOP: Speed

465 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

466 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

467 ANS:

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

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

KEY: multiplication

468 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

**Integrated Algebra 4 Point Regents Exam Questions
Answer Section**

469 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

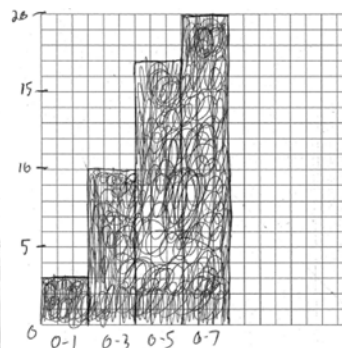
REF: 010939ia

STA: A.S.19

TOP: Sample Space

470 ANS:

Number of Days Outside			Number of Days Outside	
Interval	Tally	Frequency	Interval	Cumulative Frequency
0-1		3	0-1	3
2-3		7	0-3	10
4-5		7	0-5	17
6-7		3	0-7	20



PTS: 4

REF: 080838ia

STA: A.S.5

KEY: cumulative frequency histograms

TOP: Frequency Histograms, Bar Graphs and Tables

471 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

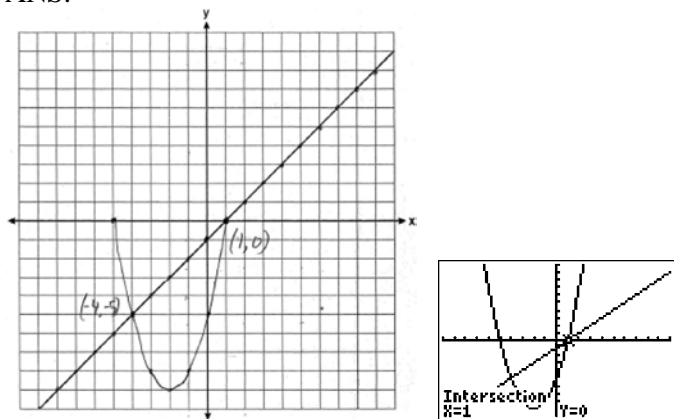
REF: 080937ia

STA: A.A.18

TOP: Multiplication and Division of Rationals

KEY: division

472 ANS:



PTS: 4

REF: 080839ia

STA: A.G.9

TOP: Quadratic-Linear Systems

473 ANS:
 $259.99 \times 1.07 - 259.99(1 - 0.3) \times 1.07 = 83.46$

PTS: 4 REF: 011239ia STA: A.N.5 TOP: Percents

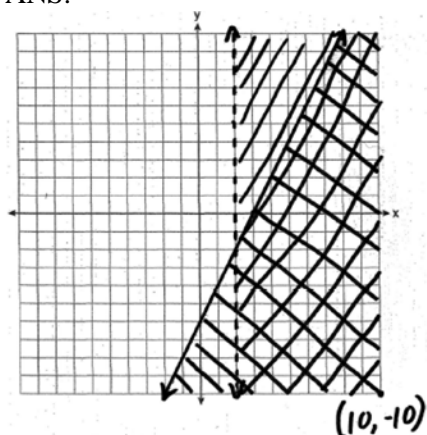
474 ANS:
 $24,435.19. 30000(.95)^4 \approx 24435.19$

PTS: 4 REF: 011138ia STA: A.A.9 TOP: Exponential Functions

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

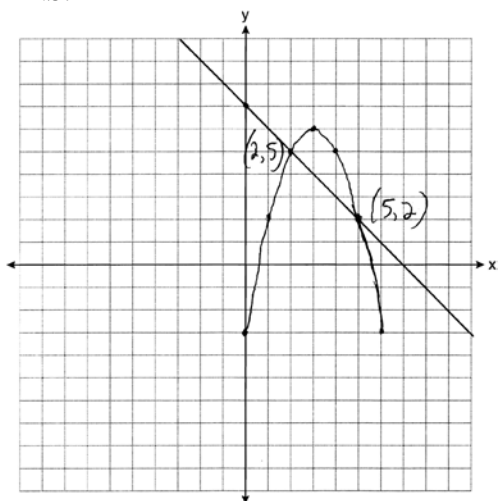
PTS: 4 REF: fall0737ia STA: A.S.4
 TOP: Frequency Histograms, Bar Graphs and Tables

476 ANS:



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

477 ANS:



PTS: 4 REF: 081138ia STA: A.G.9 TOP: Quadratic-Linear Systems

478 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

479 ANS:

$$\frac{x^2 + 9x + 14}{x^2 - 49} \div \frac{3x + 6}{x^2 + x - 56} = \frac{(x+7)(x+2)}{(x+7)(x-7)} \cdot \frac{(x+8)(x-7)}{3(x+2)} = \frac{x+8}{3}$$

PTS: 4

REF: 061037ia

STA: A.A.18

TOP: Multiplication and Division of Rationals

KEY: division

480 ANS:

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

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

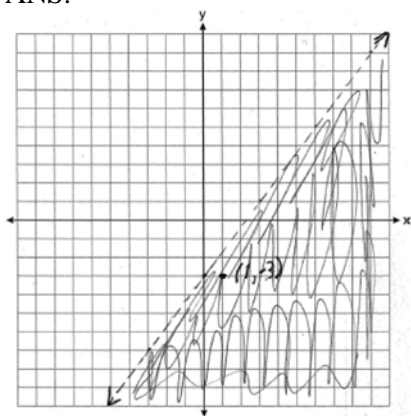
PTS: 4

REF: 060937ia

STA: A.A.44

TOP: Using Trigonometry to Find a Side

481 ANS:



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

$$4 + 9 > 9$$

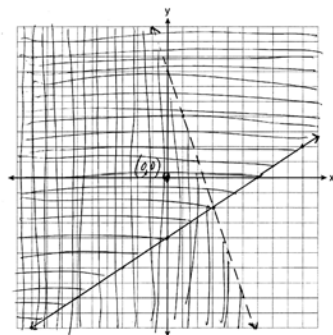
PTS: 4

REF: 011038ia

STA: A.G.6

TOP: Linear Inequalities

482 ANS:



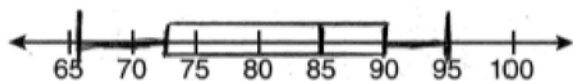
PTS: 4

REF: 061139ia

STA: A.G.7

TOP: Systems of Linear Inequalities

483 ANS:



PTS: 4

REF: 080939ia

STA: A.S.5

TOP: Box-and-Whisker Plots

484 ANS:

$$7, 9, 11. \quad x + (x + 2) + (x + 4) = 5(x + 2) - 18$$

$$3x + 6 = 5x - 8$$

$$14 = 2x$$

$$7 = x$$

PTS: 4

REF: 011237ia

STA: A.A.6

TOP: Modeling Equations

485 ANS:

30, 20, 71-80, 81-90 and 91-100

PTS: 4

REF: 061038ia

STA: A.S.9

TOP: Frequency Histograms, Bar Graphs and Tables

486 ANS:

(T,J,F), (T,J,N), (T,K,F), (T,K,N), (T,C,F), (T,C,N), (B,J,F), (B,J,N), (B,K,F), (B,K,N), (B,C,F), (B,C,N), (S,J,F), (S,J,N), (S,K,F), (S,K,N), (S,C,F), (S,C,N). 3, 12.

PTS: 4

REF: 061138ia

STA: A.S.19

TOP: Sample Space

487 ANS:

315,000, 180,000, the median better represents value since it is closer to more prices than the mean.

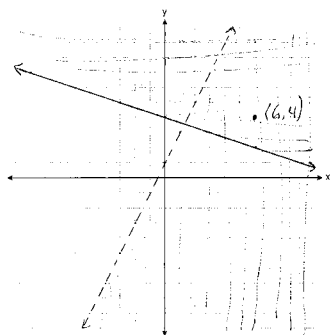
PTS: 4

REF: 060839ia

STA: A.S.4

TOP: Frequency Histograms, Bar Graphs and Tables

488 ANS:



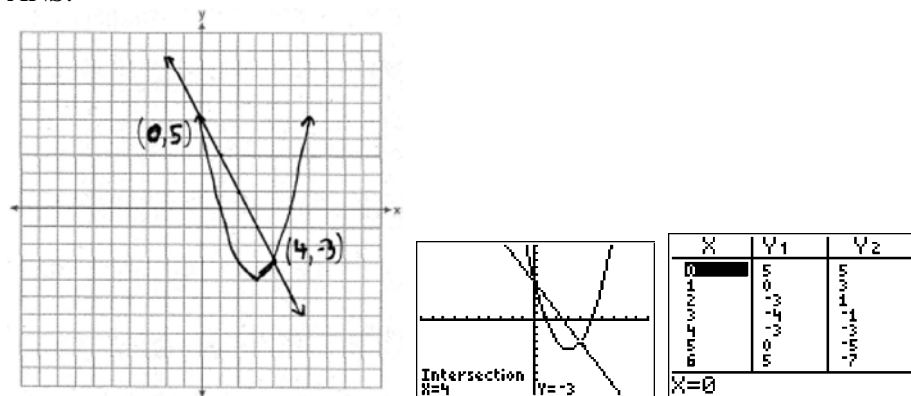
PTS: 4

REF: 081037ia

STA: A.G.7

TOP: Systems of Linear Inequalities

489 ANS:



PTS: 4 REF: fall0738ia STA: A.G.9 TOP: Quadratic-Linear Systems

490 ANS:

$$\frac{4}{12} \times \frac{2}{11} \times \frac{1}{10} = \frac{8}{1320} \quad \frac{6}{12} \times \frac{5}{11} \times \frac{4}{10} + \frac{4}{12} \times \frac{3}{11} \times \frac{2}{10} = \frac{120}{1320} + \frac{24}{1320} = \frac{144}{1320}$$

PTS: 4 REF: 081137ia STA: A.S.23 TOP: Theoretical Probability

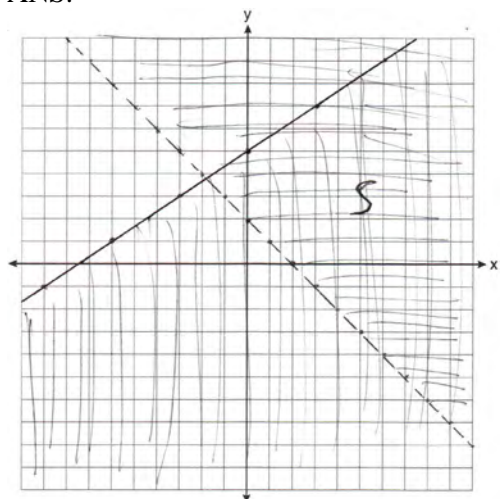
KEY: dependent events

491 ANS:

$$\begin{aligned} (-2, 5). \quad & 3x + 2y = 4 \quad 12x + 8y = 16. \quad 3x + 2y = 4 \\ & 4x + 3y = 7 \quad 12x + 9y = 21 \quad 3x + 2(5) = 4 \\ & \qquad \qquad \qquad y = 5 \quad \qquad \qquad 3x = -6 \\ & \qquad \qquad \qquad \qquad \qquad \qquad x = -2 \end{aligned}$$

PTS: 4 REF: 010937ia STA: A.A.10 TOP: Solving Linear Systems

492 ANS:



PTS: 4 REF: 011139ia STA: A.G.7 TOP: Systems of Linear Inequalities

493 ANS:

$$-\frac{9}{4} \cdot \frac{3}{4} = \frac{-(x+11)}{4x} + \frac{1}{2x}$$

$$\frac{3}{4} = \frac{-x-11}{4x} + \frac{2}{4x}$$

$$\frac{3}{4} = \frac{-x-9}{4x}$$

$$12x = -4x - 36$$

$$16x = -36$$

$$x = -\frac{9}{4}$$

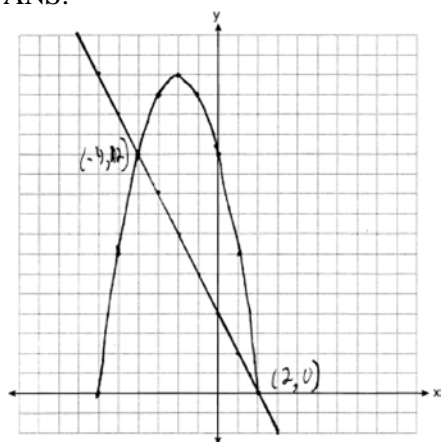
PTS: 4

REF: 061137ia

STA: A.A.26

TOP: Solving Rationals

494 ANS:



PTS: 4

REF: 061039ia

STA: A.G.9

TOP: Quadratic-Linear Systems

495 ANS:

$$0.029 \cdot \frac{[2\pi(5.1)^2 + 2\pi(5.1)(15.1)] - [2\pi(5)^2 + 2\pi(5)(15)]}{2\pi(5.1)^2 + 2\pi(5.1)(15.1)} \approx \frac{647.294 - 628.319}{647.294} \approx 0.029$$

PTS: 4

REF: 011137ia

STA: A.M.3

TOP: Error

KEY: volume and surface area

496 ANS:

$$w(w+15) = 54, 3, 18. \quad w(w+15) = 54$$

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

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

$$w = 3$$

PTS: 4

REF: 060837ia

STA: A.A.8

TOP: Geometric Applications of Quadratics

497 ANS:

$$\frac{m}{5} + \frac{3(m-1)}{2} = 2(m-3)$$

$$\frac{2m}{10} + \frac{15(m-1)}{10} = 2m - 6$$

$$\frac{17m-15}{10} = 2m-6$$

$$17m-15 = 20m-60$$

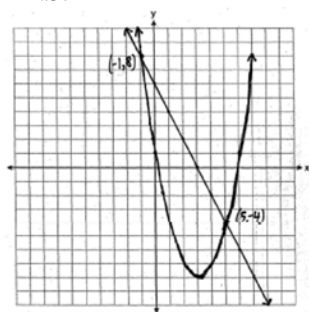
$$45 = 3m$$

$$15 = m$$

PTS: 4 REF: 081139ia STA: A.A.25

TOP: Solving Equations with Fractional Expressions

498 ANS:



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

499 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

KEY: area

500 ANS:

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

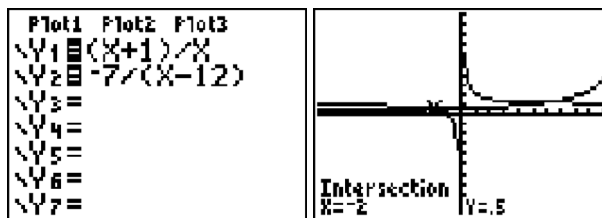
$(x+1)(x-12) = -7x$

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

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

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

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



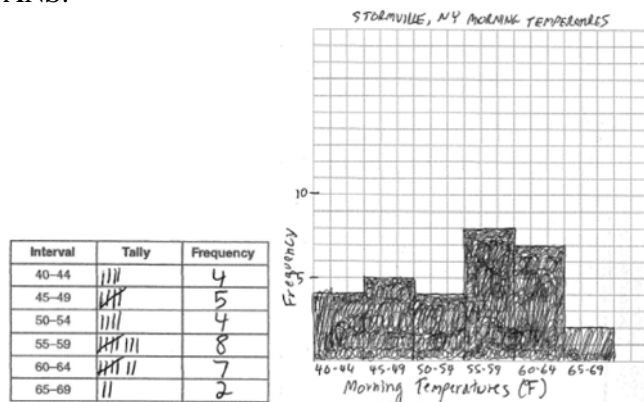
PTS: 4 REF: fall0739ia STA: A.A.26 TOP: Solving Rationals

501 ANS:

Hat A, add 1 not green to Hat A, add 11 green to Hat B, and add none to Hat C.

PTS: 4 REF: 081038ia STA: A.S.22 TOP: Theoretical Probability

502 ANS:



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

503 ANS:

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

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

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

$m = \$0.50$

PTS: 3 REF: 080837ia STA: A.A.7 TOP: Writing Linear Systems

504 ANS:

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

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

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

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

$$x = 6$$

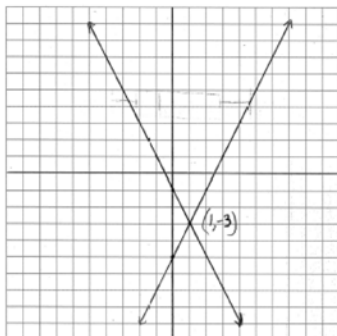
PTS: 4

REF: 011039ia

STA: A.A.8

TOP: Writing Quadratics

505 ANS:



PTS: 4

REF: 080938ia

STA: A.G.7

TOP: Solving Linear Systems

506 ANS:

(W,H,A), (W,H,S), (W,T,A), (W,T,S), (W,B,A), (W,B,S), (R,H,A), (R,H,S), (R,T,A), (R,T,S), (R,B,A), (R,B,S).
8, 3

PTS: 4

REF: 011238ia

STA: A.S.19

TOP: Sample Space

507 ANS:

$$84, 71 \quad \sin 50 = \frac{x}{110} \quad \cos 50 = \frac{y}{110}$$

$$x \approx 84 \quad y \approx 71$$

PTS: 4

REF: 081039ia

STA: A.A.44

TOP: Using Trigonometry to Find a Side