Dear Sir

I have to acknowledge 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: 3  REF: 060919ia  STA: A.G.3  TOP: Defining Functions
2. ANS: 1  REF: 011001ia  STA: A.S.6  TOP: Box-and-Whisker Plots
3. 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.14  TOP: Rational Expressions
4. ANS: 2  REF: 011022ia  STA: A.A.19  TOP: Factoring the Difference of Perfect Squares
5. ANS: 4
\[
P(G or W) = \frac{4}{8}, P(G or B) = \frac{3}{8}, P(Y or B) = \frac{4}{8}, P(Y or G) = \frac{5}{8}
\]
REF: 060802ia  STA: A.S.22  TOP: Theoretical Probability
6. 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
7. ANS: 2
\[
R = 0.5^{d-1}
\]
REF: 011006ia  STA: A.A.9  TOP: Exponential Functions
8. ANS: 1  REF: 011004ia  STA: A.A.31  TOP: Set Theory
9. 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
10 ANS: 3

\[(3 - 1) \times 2 \times 3 = 12\]

REF: 080905ia STA: A.N.7 TOP: Conditional Probability

11 ANS: 2

REF: 011015ia STA: A.G.10 TOP: Identifying the Vertex of a Quadratic Given Graph

12 ANS: 2

\[
\sin A = \frac{8}{12} \\
A \approx 42
\]

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

13 ANS: 1

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

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

14 ANS: 2

\[P = 2l + 2w\]

\[P - 2l = 2w\]

\[\frac{P - 2l}{2} = w\]

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

15 ANS: 3

The other situations are quantitative.

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

16 ANS: 2

\[s + o = 126. s + 2s = 126\]

\[o = 2s \quad s = 42\]

REF: 080811ia STA: A.A.7 TOP: Writing Linear Systems

17 ANS: 4

\[A = lw = (3w - 7)(w) = 3w^2 - 7w\]

REF: 010924ia STA: A.A.1 TOP: Geometric Applications of Quadratics

18 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: Probability of Events Not Mutually Exclusive
19 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

20 ANS: 2
\[ \frac{2}{3x} + \frac{4}{3x} = \frac{9x + 8x}{6x^2} = \frac{17x}{6x^2} = \frac{17}{6x} \]

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

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

22 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

23 ANS: 3
The other situations are quantitative.

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

24 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

25 ANS: 2
REF: 011023ia STA: A.A.40 TOP: Systems of Linear Inequalities

26 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

27 ANS: 4
\[ y = mx + b \]
\[ -1 = (2)(3) + b \]
\[ b = -7 \]

REF: 080927ia STA: A.A.34 TOP: Writing Linear Equations
\[
\frac{6}{4a} - \frac{2}{3a} = \frac{18a - 8a}{12a^2} = \frac{10a}{12a^2} = \frac{5}{6a}
\]

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

29 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

30 ANS: 4  REF: 080825ia  STA: A.A.40  TOP: Systems of Linear Inequalities

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


33 ANS: 4
\[
\frac{\text{distance}}{\text{time}} = \frac{24}{6} = 4
\]

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

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

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

36 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

37 ANS: 3
\[
35000(1 - 0.05)^4 \approx 28507.72
\]

REF: fall0719ia  STA: A.A.9  TOP: Exponential Functions

38 ANS: 4
\[
-2(x - 5) < 4
\]
\[
-2x + 10 < 4
\]
\[
-2x < -6
\]
\[
x > 3
\]

REF: 080913ia  STA: A.A.21  TOP: Interpreting Solutions
39  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

40  ANS: 1
\[ x - 2y = 1 \]
\[ x + 4y = 7 \]
\[ -6y = -6 \]
\[ y = 1 \]

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

41  ANS: 4
\[-4x + 2 > 10 \]
\[-4x > 8 \]
\[ x < -2 \]

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

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

43  ANS: 2  REF: 010909ia  STA: A.A.19
TOP: Factoring the Difference of Perfect Squares

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

45  ANS: 4
SA = 2lw + 2lh + 2lh = 2(3)(1.5) + 2(2)(1.5) + 2(3)(2) = 27

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

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

47  ANS: 4
25(x - 3) = 25x - 75

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

48  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

49  ANS: 3
\[ \cos A = \frac{\text{adjacent}}{\text{hypotenuse}} = \frac{15}{17} \]

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

50  ANS: 2  REF: 060830ia  STA: A.A.9  TOP: Exponential Functions
\[ \sqrt{72} = \sqrt{36 \cdot 2} = 6\sqrt{2} \]

51 ANS: 3  
The slope of the inequality is \( -\frac{1}{2} \).

52 ANS: 2  
\[ \text{An element of the domain, 1, is paired with two different elements of the range, 3 and 7.} \]

53 ANS: 3  
\[ \text{A product of the domain, 1, is paired with two different elements of the range, 3 and 7.} \]

54 ANS: 3  
\[ 2x^2 + 10x - 12 = 2(x^2 + 5x - 6) = 2(x + 6)(x - 1) \]

55 ANS: 2  
\[ \text{A product of the domain, 1, is paired with two different elements of the range, 3 and 7.} \]

56 ANS: 2  
\[ \text{A product of the domain, 1, is paired with two different elements of the range, 3 and 7.} \]

57 ANS: 1  
\[ \frac{4x}{x - 1} \cdot \frac{x^2 - 1}{3x + 3} = \frac{4x}{x - 1} \cdot \frac{(x + 1)(x - 1)}{3(x + 1)} = \frac{4x}{3} \]
59 ANS: 4

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

60 ANS: 4

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

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

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

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

63 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

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

65 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 Functions and Relations

66 ANS: 1

The slope of both is $-4$.

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

67 ANS: 4

The mean is 80.6, the median is 84.5 and the mode is 87.

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

68 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

69 ANS: 3 REF: 060926ia STA: A.N.1 TOP: Properties of Reals

70 ANS: 4 REF: 010930ia STA: A.G.3 TOP: Defining Functions
71 ANS: 2
\[ 5\sqrt{20} = 5\sqrt{4 \times 5} = 10\sqrt{5} \]

REF: 080922ia STA: A.N.2 TOP: Simplifying Radicals
72 ANS: 2 REF: 011005ia STA: A.A.5 TOP: Modeling Inequalities
73 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
74 ANS: 4 REF: 011016ia STA: A.A.23 TOP: Transforming Formulas
75 ANS: 3
\[ x^2 - 10x + 21 = 0 \]
\[ (x - 7)(x - 3) = 0 \]
\[ x = 7 \quad x = 3 \]

REF: 010914ia STA: A.A.28 TOP: Solving Quadratics by Factoring
76 ANS: 3
\[ m = \frac{4 - 10}{3 - (-6)} = \frac{-2}{3} \]

REF: fall0716ia STA: A.A.33 TOP: Slope
77 ANS: 4 REF: 011025ia STA: A.A.17 TOP: Addition and Subtraction of Rationals
78 ANS: 1
A rooster crows before sunrise, not because of the sun.

REF: fall0707ia STA: A.S.14 TOP: Analysis of Data
79 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
80 ANS: 3 REF: fall0702ia STA: A.S.23 TOP: Theoretical Probability
81 ANS: 2 REF: 010915ia STA: A.A.5 TOP: Modeling Equations
82 ANS: 2 REF: 080916ia STA: A.G.8 TOP: Solving Quadratics by Graphing
83 ANS: 1
\[ \sin C = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{13}{85} \]

REF: fall0721ia STA: A.A.42 TOP: Basic Trigonometric Ratios
84 ANS: 2
\[ m = \frac{5 - 3}{2 - 7} = \frac{2}{-5} \]

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

85 ANS: 2
\[ \frac{2x^2 - 12x}{x - 6} = \frac{2x(x - 6)}{x - 6} = 2x \]

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

86 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

87 ANS: 2
\[ \frac{149.6 - 174.2}{149.6} \approx 0.1644 \]

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

88 ANS: 1
TOP: Identifying the Vertex of a Quadratic Given Graph

89 ANS: 1
\[ \frac{2}{x - 3} = \frac{26}{x} \]
\[ -3 = \frac{24}{x} \]
\[ x = -8 \]

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

90 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: Rational Expressions

91 ANS: 4
REF: 080903ia STA: A.A.12 TOP: Multiplication of Powers

92 ANS: 2
\[ 1.5^3 = 3.375 \]

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

93 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

94 ANS: 4
REF: 060829ia STA: A.G.5 TOP: Graphing Quadratics

95 ANS: 3
REF: 080819ia STA: A.A.13 TOP: Addition and Subtraction of Polynomials
96 ANS: 3  REF: 060808ia  STA: A.N.8  TOP: Permutations
97 ANS: 3  REF: 060825ia  STA: A.A.45  TOP: Pythagorean Theorem
98 ANS: 1  REF: 060920ia  STA: A.G.6  TOP: Linear Inequalities
99 ANS: 3  
\[ |-5(5) + 12| = |-13| = 13 \]

REF: 080923ia  STA: A.N.6  TOP: Absolute Value
100 ANS: 4  REF: 010929ia  STA: A.S.6  TOP: Box-and-Whisker Plots
101 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 Equations with Fractional Expressions
102 ANS: 4  REF: fall0715ia  STA: A.A.5  TOP: Modeling Inequalities
103 ANS: 1  REF: fall0723ia  STA: A.M.3  TOP: Error
104 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
105 ANS: 3  REF: 060924ia  STA: A.G.8  TOP: Solving Quadratics by Graphing
106 ANS: 1

\[ 8^2 + 15^2 = c^2 \]

\[ c^2 = 289 \]

\[ c = 17 \]

REF: 080906ia  STA: A.A.45  TOP: Pythagorean Theorem
107 ANS: 1

\[ \frac{1}{8} \times \frac{1}{8} = \frac{1}{64} \]

REF: 010928ia  STA: A.S.23  TOP: Probability of Independent Events
108 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

109 ANS: 4
REF: 060916ia STA: A.A.15 TOP: Undefined Rationals

110 ANS: 2
\[\sin U = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{15}{17}\]

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

111 ANS: 1
\[y = mx + b\]
\[-6 = (-3)(4) + b\]
\[b = 6\]

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

112 ANS: 4
REF: fall0717ia STA: A.G.4

113 ANS: 4
\[w(w + 5) = 36\]
\[w^2 + 5w - 36 = 0\]

REF: fall0726ia STA: A.A.5 TOP: Geometric Applications of Quadratics

114 ANS: 1
\[\left|\frac{289 - 282}{289}\right| \approx 0.024\]

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

115 ANS: 3
REF: 080907ia STA: A.S.20 TOP: Theoretical Probability

116 ANS: 3
\[m = \frac{1 - (-4)}{-6 - 4} = \frac{1}{2}\]

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

117 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
ANS:  4
\[ A = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20\} \]

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

ANS:  4
\[ \frac{2^6}{2^3} = 2^5 \]

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

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

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

ANS:  2

The volume of the cube using Ezra’s measurements is 8 \((2^3)\). The actual volume is 9.261 \((2.13)\). The relative error is \[ \frac{|9.261 - 8|}{9.261} \approx 0.14. \]

REF:  060928ia  STA:  A.M.3  TOP:  Error

ANS:  4

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

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

ANS:  1  REF:  010905ia  STA:  A.G.4  TOP:  Graphing Functions and Relations

ANS:  3
\[ 25 - 18 = 7 \]

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

ANS:  1  REF:  080924ia  STA:  A.G.1  TOP:  Compositions of Polygons and Circles

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

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

ANS:  1  REF:  080902ia  STA:  A.A.19  TOP:  Factoring the Difference of Perfect Squares

ANS:  4  REF:  080803ia  STA:  A.A.4  TOP:  Modeling Inequalities

ANS:  4
\[ 16^2 + b^2 = 34^2 \]

\[ b^2 = 900 \]

\[ b = 30 \]

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

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

ANS:  3  REF:  080925ia  STA:  A.G.4  TOP:  Identifying the Equation of a Graph

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
The two values are shoe size and height.

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

138 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

139 ANS: 1

REF: 060804ia STA: A.A.19 TOP: Factoring the Difference of Perfect Squares

140 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
141 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

142 ANS: 1  
REF: 060807ia  STA: A.A.13  TOP: Multiplication of Powers

143 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

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

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

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

147 ANS: 3  
\[ 3ax + b = c \]  
\[ 3ax = c - b \]  
\[ x = \frac{c - b}{3a} \]  

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

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

149 ANS: 2  
\[ \tan 32 = \frac{x}{25} \]  
\[ x \approx 15.6 \]  

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

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

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

152 ANS: 3  
\[ 500(1 + 0.06)^3 \approx 596 \]  

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

153 ANS: 4  
\[ A(-3, 4) \text{ and } B(5, 8). \quad m = \frac{4 - 8}{-3 - 5} = \frac{-4}{-8} = \frac{1}{2} \]  

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

154 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
The number of correct answers on a test causes the test score.

\[
x = \frac{-b}{2a} = \frac{-(-16)}{2(1)} = 8.
\]

\[
y = (8)^2 - 16(8) + 63 = -1
\]

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

\[
7f + 10 = 1424
\]

\[
f = 202
\]

\[
-2x + 5 > 17
\]

\[
-2x > 12
\]

\[
x < -6
\]

mean = 6, median = 6 and mode = 7

\[
3^2 + 5^2 = x^2
\]

\[
34 = x^2
\]

\[
\sqrt{34} = x
\]

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

mean = 6, median = 6 and mode = 7

mean = 6, median = 6 and mode = 7

mean = 6, median = 6 and mode = 7
The slope of \( y = 3 - 2x \) is \(-2\). Using \( m = \frac{A}{B} \), the slope of \( 4x + 2y = 5 \) is \( \frac{4}{2} = -2 \).

\[
6\sqrt{50} + 6\sqrt{2} = 6\sqrt{25 \cdot 2} + 6\sqrt{2} = 30\sqrt{2} + 6\sqrt{2} = 36\sqrt{2}
\]

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

\[
A \approx 38.7
\]

\[
\frac{\sqrt{32}}{4} = \frac{\sqrt{16\cdot2}}{4} = \sqrt{2}
\]

\[
x = 8
\]

Frequency is not a variable.
177 ANS: 3  REF:  fall0705ia  STA: A.N.1  TOP: Identifying Properties
178 ANS: 3  REF:  011017ia  STA: A.G.5  TOP: Graphing Quadratics
179 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
180 ANS: 2  
\[\sqrt{32} = \sqrt{16} \times 2 = 4\sqrt{2}\]
REF: 060910ia  STA: A.N.2  TOP: Simplifying Radicals
181 ANS: 1  
\[4P_4 = 4 \times 3 \times 2 \times 1 = 24\]
REF: 080816ia  STA: A.N.8  TOP: Permutations
182 ANS: 1  REF: 060811ia  STA: A.G.10  TOP: Identifying the Vertex of a Quadratic Given Graph
183 ANS: 1  
\[m = \frac{4 - (-4)}{-5 - 15} = \frac{2}{5}\]
REF: 080915ia  STA: A.A.33  TOP: Slope
184 ANS: 2  REF: 060904ia  STA: A.A.1  TOP: Expressions
185 ANS: 2  REF: 080815ia  STA: A.G.1  TOP: Compositions of Polygons and Circles
186 ANS: 1  REF: 060801ia  STA: A.G.4  TOP: Families of Functions
187 ANS: 2  REF: fall0725ia  STA: A.N.4  TOP: Operations with Scientific Notation
188 ANS: 2  
Debbie failed to distribute the 3 properly.
REF: 011009ia  STA: A.A.22  TOP: Solving Equations
189 ANS: 2  REF: 011002ia  STA: A.S.20  TOP: Theoretical Probability
190 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
191 ANS: 4  
\[SA = 2hw + 2hw + 2lh = 2(2)(3) + 2(4)(3) + 2(2)(4) = 52\]
REF: 011029ia  STA: A.G.2  TOP: Surface Area
192 ANS: 2  REF: 080930ia  STA: A.S.17  TOP: Scatter Plots
193 ANS: 4

\[
\frac{2x + 1}{3} = \frac{7x - 2}{15}
\]

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

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

\[6x + 5 = 7x - 2\]

\[x = 7\]

REF: 080820ia STA: A.A.26 TOP: Solving Equations with Fractional Expressions

194 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

195 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
5p − 1 = 2p + 20

3p = 21

p = 7

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

196 ANS: 4

REF: 010916ia STA: A.G.10 TOP: Identifying the Vertex of a Quadratic Given Graph

197 ANS: 2

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

198 ANS: 3

\[ \cos 30 = \frac{x}{24} \]

x ≈ 21

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

199 ANS: 3

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

REF: 060821ia STA: A.A.5 TOP: Modeling Inequalities

200 ANS: 2

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

201 ANS: 4

\[ \frac{5}{45} = \frac{8}{x} \]

5x = 360

x = 72

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

202 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 or -1
203 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

204 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

205 ANS: 1
\[
-a - b = -|7 - (-3)| = -|-10| = -10
\]

REF: 011010ia STA: A.N.6 TOP: Absolute Value

206 ANS: 2
\[
L + S = 47
\]

\[
L - S = 15
\]

\[
2L = 62
\]

\[
L = 31
\]

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

207 ANS: 1
\[
m = \frac{3 - 0}{0 - 2} = \frac{3}{-2} = -\frac{3}{2}.
\]

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

208 ANS: 1
\[
\text{The slope of } 2x - 4y = 16 \text{ is } \frac{-A}{B} = \frac{-2}{-4} = \frac{1}{2}
\]

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

209 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
\[
\frac{(d \times 3) + (2 \times 2d)}{2 \times 3} = \frac{3d + 4d}{6} = \frac{7d}{6}
\]

REF: fall0727ia  STA: A.A.17  TOP: Expressions
Integrated Algebra 2 Point Regents Exam Questions
Answer Section

211 ANS:
\[
P(s_1 < 4) \times P(s_2 = \text{back}) = \frac{3}{4} \times \frac{1}{2} = \frac{3}{8}
\]
PTS: 2  REF: 080832ia  STA: A.S.23  TOP: Probability of Independent Events

212 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

213 ANS:
\[
60. \ \ gP_3 = 60
\]
PTS: 2  REF: 060931ia  STA: A.N.8  TOP: Permutations

214 ANS:
\[
\{1,2,4,5,9,10,12}\}
\]
PTS: 2  REF: 080833ia  STA: A.A.30  TOP: Set Theory

215 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

216 ANS:
\[
\frac{3k^2m^6}{4}
\]
PTS: 2  REF: 010932ia  STA: A.A.12  TOP: Division of Powers

217 ANS:
\[
d = 6.25h, \ 250. \ d = 6.25(40) = 250
\]
PTS: 2  REF: 010933ia  STA: A.N.5  TOP: Direct Variation

218 ANS:
\[
\frac{1}{8}. \ \text{After the English and social studies books are taken, 8 books are left and 1 is an English book.}
\]
PTS: 2  REF: 060933ia  STA: A.S.18  TOP: Conditional Probability

219 ANS:
\[
\text{orchestra: } \frac{3}{26} > \frac{4}{36}
\]
PTS: 2  REF: 011033ia  STA: A.S.22  TOP: Theoretical Probability
220 ANS:
36 – 9\pi.  15.6.  Area of square–area of 4 quarter circles.  (3 + 3)² – 3² \pi = 36 – 9\pi

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

221 ANS:
\frac{distance}{time} = \frac{89}{0.8} = 111.25

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

222 ANS:
Ann’s.  \frac{225}{15} = 15 \text{ mpg} \text{ is greater than } \frac{290}{23.2} = 12.5 \text{ mpg

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

223 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

224 ANS:
16.  12 \text{ feet equals 4 yards}.  4 \times 4 = 16.

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

225 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

226 ANS:
0 \leq t \leq 40

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

227 ANS:
33.4.  Serena needs 24 (9 + 6 + 9) \text{ 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 \text{ feet.

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

228 ANS:
53.  \sin \theta = \frac{16}{20} \quad \theta \approx 53

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

229 ANS:
5,112.  (12 \times 30 \times 16) – (6 \times 12 \times 9) = 5112

PTS: 2    REF: 080932ia    STA: A.G.2    TOP:  Volume
4. $3 + 2g = 5g - 9$

   $12 = 3g$

   $g = 4$

231 ANS:

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

PTS: 2     REF: fall0731ia   STA: A.N.2   TOP: Simplifying Radicals
Integrated Algebra 3 Point Regents Exam Questions
Answer Section

232 ANS:
Greg’s rate of 5.5 is faster than Dave’s rate of 5.3. \[
\frac{\text{distance}}{\text{time}} = \frac{11}{2} = 5.5, \quad \frac{16}{3} = 5.3
\]

PTS: 3       REF: 080936ia     STA: A.M.1     TOP: Speed

233 ANS:
56. If the circumference of circle \( O \) is 16\( \pi \) inches, the diameter, \( AD \), is 16 inches and the length of \( BC \) 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

234 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

235 ANS:
\[
\frac{\frac{3}{4x - 8}}{\frac{3x + 6}{x + 3}} = \frac{\frac{3(x + 2)}{4(x + 3)}}{\frac{(x + 2)(x - 2)}{4(x - 2)}}
\]

PTS: 3       REF: 010935ia     STA: A.A.18     TOP: Multiplication and Division of Rationals

236 ANS:
\[
-2, 3.
\]
\[
x^2 - x = 6
\]
\[
x^2 - x - 6 = 0
\]
\[
(x - 3)(x + 2) = 0
\]
\[
x = 3 \text{ or } -2
\]

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

237 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
238 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

239 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

240 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

241 ANS:

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

242 ANS:

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

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

243 ANS:

$\left(-2, 11\right)$. \(\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
244 ANS:

![Graph](image)

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

245 ANS:

7. \(15x + 22 \geq 120\)

\[x \geq 6.53\]

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

246 ANS:

\[
1,512, 1,551.25, 0.025.
\]

\[36 \times 42 = 1512, \quad 36.5 \times 42.5 = 1551.25.
\]

\[
RE = \left| \frac{1512 - 1551.25}{1551.25} \right| \approx 0.025.
\]

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

247 ANS:

\[10 + 2d \geq 75, \quad 10 + 2d \geq 75\]

\[d \geq 32.5\]

PTS: 3 REF: 060834ia STA: A.A.6 TOP: Modeling Inequalities

248 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

249 ANS:

\[
\frac{38}{\pi}, \quad 2.
\]

\[V = \pi r^2 h \quad \frac{36}{38} \approx 2.97. \text{ Three cans will not fit. The maximum number is } 2.
\]

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

\[
\frac{342}{9\pi} = h
\]

\[
\frac{38}{\pi} = h
\]

PTS: 3 REF: 010936ia STA: A.G.2 TOP: Volume
250 ANS:
81.3, 80, both increase

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

251 ANS:
30.4%; no, 23.3%. \[
\frac{7.50 - 5.75}{5.75} = 30.4\%. \quad \frac{7.50 - 5.75}{7.50} = 23.3\%
\]

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

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

PTS: 3 REF: fall0734ia STA: A.M.1 TOP: Speed
Integrated Algebra 4 Point Regents Exam Questions
Answer Section

253 ANS: [Diagram]

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

254 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

255 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

256 ANS: [Diagram]

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

257 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
258 ANS:

\[
\begin{align*}
(w + 15) &= 54, 3, 18; \quad w(w + 15) = 54 \\
&= w^2 + 15w - 54 = 0 \\
&= (w + 18)(w - 3) = 0 \\
&= w = 3
\end{align*}
\]

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

259 ANS:

\[
\begin{align*}
\frac{x - 7}{3x} \cdot \frac{2x^2 - 8x - 42}{6x^2} \cdot \frac{x^2 - 9}{x^2 - 3x} &= \frac{2(x^2 - 4x - 21)}{6x^2} \cdot \frac{x(x - 3)}{(x + 3)(x - 3)} \cdot \frac{1}{x + 3} = \frac{x - 7}{3x}
\end{align*}
\]

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

260 ANS:

\[
\begin{align*}
\text{Frequency Histograms, Bar Graphs and Tables}
\end{align*}
\]

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

261 ANS:

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


PTS: 4  REF: 060939ia  STA: A.G.9  TOP: Quadratic-Linear Systems
265  ANS:  
\[ m = 50\epsilon, \quad p = 15\epsilon. \quad 3m + 2p = 1.80. \quad 9m + 6p = 5.40. \quad 4(\epsilon) + 6p = 2.90 \]
\[ 4m + 6p = 2.90 \quad 4m + 6p = 2.90 \quad 6p = 90 \]
\[ 5m = 2.50 \quad p = 0.15 \]
\[ m = 0.50 \]

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

266  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

267  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

268  ANS:  
(1, -3) is in the solution set. 
\[ 4(1) - 3(-3) > 9 \]
\[ 4 \neq 9 \]

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

269  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
270 ANS:

PTS: 4  REF: 080938ia  STA: A.G.7  TOP: Solving Linear Systems

271 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

272 ANS:

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

273 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