JEFFERSON MATH PROJECT
REGENTS BY TOPIC

NY Integrated Algebra Regents Exam Questions
from Fall 2007 to January 2012 Sorted by Topic
(Answer Key)

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Dear Sir

I have to acknolege the reciept of your favor of May 14. in which you mention that you have finished the
6. first books of Euclid, plane trigonometry, surveying & algebra and ask whether I think a further
pursuit of that branch of science would be useful to you. there are some propositions in the latter books of
Euclid, & some of Archimedes, which are useful, & I have no doubt you have been made acquainted with
them. trigonometry, so far as this, is most valuable to every man, there is scarcely a day in which he will not
resort to it for some of the purposes of common life. the science of calculation also is indispensible as far as
the extraction of the square & cube roots; Algebra as far as the quadratic equation & the use of logarithms
are often of value in ordinary cases: but all beyond these is but a luxury; a delicious luxury indeed; but
not to be indulged in by one who is to have a profession to follow for his subsistence. in this light I view the
conic sections, curves of the higher orders, perhaps even spherical trigonometry, Algebraical operations
beyond the 2d dimension, and fluxions.

Letter from Thomas Jefferson to William G. Munford, Monticello, June 18, 1799.

**Integrated Algebra Regents Exam Questions by Performance Indicator: Topic
Answer Section**

1 ANS: 3
$$\left|-5(5)+12\right| = \left|-13\right| = 13$$

PTS: 2   REF: 080923ia   STA: A.N.6   TOP: Evaluating Expressions
2 ANS: 1
$$-|a-b| = -\left|7-(-3)\right| = -|-10| = -10$$

PTS: 2   REF: 011010ia   STA: A.N.6   TOP: Evaluating Expressions
3 ANS: 2   PTS: 2   REF: 011110ia   STA: A.N.6
TOP: Evaluating Expressions
4 ANS: 1
$$-3(-4)^{2}(2)+4(-4) = -96-16 = -112$$

PTS: 2   REF: 081113ia   STA: A.N.6   TOP: Evaluating Expressions
5 ANS: 3   PTS: 2   REF: fall0705ia   STA: A.N.1
TOP: Identifying Properties
6 ANS: 2   PTS: 2   REF: 080802ia   STA: A.N.1
TOP: Identifying Properties
7 ANS:
(1) Distributive; (2) Commutative

PTS: 2   REF: 061132ia   STA: A.N.1   TOP: Identifying Properties
8 ANS: 3   PTS: 2   REF: 060926ia   STA: A.N.1
TOP: Properties of Reals
9 ANS: 4   PTS: 2   REF: 011114ia   STA: A.N.1
TOP: Properties of Reals
10 ANS: 3   PTS: 2   REF: 011224ia   STA: A.N.1
TOP: Properties of Reals
11 ANS:
$-6a+42.$ distributive

PTS: 2   REF: 061032ia   STA: A.N.1   TOP: Properties of Reals
12 ANS: 3   PTS: 2   REF: 010917ia   STA: A.A.29
TOP: Set Theory
13 ANS: 4   PTS: 2   REF: 060930ia   STA: A.A.29
TOP: Set Theory
14 ANS: 4   PTS: 2   REF: 081022ia   STA: A.A.29
TOP: Set Theory
15 ANS: 2   PTS: 2   REF: 061128ia   STA: A.A.29
TOP: Set Theory
16 ANS: 4   PTS: 2   REF: 011222ia   STA: A.A.29
TOP: Set Theory

17 ANS: 4   PTS: 2   REF: fall0704ia   STA: A.A.29
    TOP: Set Theory
18 ANS: 1   PTS: 2   REF: 061021ia   STA: A.A.29
    TOP: Set Theory
19 ANS: 2   PTS: 2   REF: 011119ia   STA: A.A.29
    TOP: Set Theory
20 ANS: 3   PTS: 2   REF: 081117ia   STA: A.A.29
    TOP: Set Theory
21 ANS: 2

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

    PTS: 2   REF: 060818ia   STA: A.A.30   TOP: Set Theory
22 ANS: 4
    $A = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20\}$

    PTS: 2   REF: 080912ia   STA: A.A.30   TOP: Set Theory
23 ANS: 4   PTS: 2   REF: 061001ia   STA: A.A.30
    TOP: Set Theory
24 ANS: 3   PTS: 2   REF: 081009ia   STA: A.A.30
    TOP: Set Theory
25 ANS: 3   PTS: 2   REF: 081103ia   STA: A.A.30
    TOP: Set Theory
26 ANS:
    {1,2,4,5,9,10,12}

    PTS: 2   REF: 080833ia   STA: A.A.30   TOP: Set Theory
27 ANS: 2   PTS: 2   REF: 081003ia   STA: A.A.31
    TOP: Set Theory
28 ANS: 1   PTS: 2   REF: 011004ia   STA: A.A.31
    TOP: Set Theory
29 ANS: 1   PTS: 2   REF: 011101ia   STA: A.A.31
    TOP: Set Theory
30 ANS: 3   PTS: 2   REF: fall0710ia   STA: A.A.31
    TOP: Set Theory
31 ANS:
    $0 \le t \le 40$

    PTS: 2   REF: 060833ia   STA: A.A.31   TOP: Set Theory
32 ANS: 4   PTS: 2   REF: 061123ia   STA: A.A.31
    TOP: Set Theory
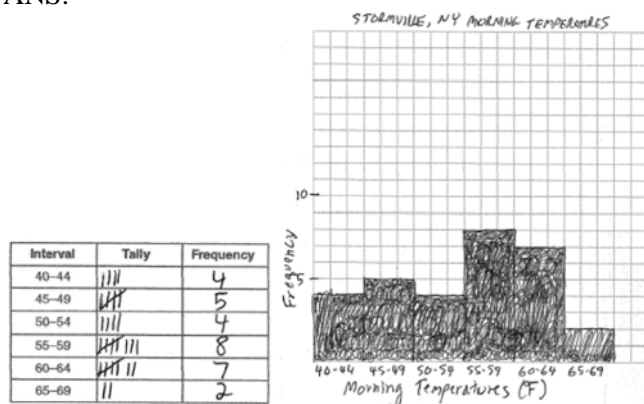33 ANS: 4   PTS: 2   REF: 011225ia   STA: A.A.31
    TOP: Set Theory

34   ANS:
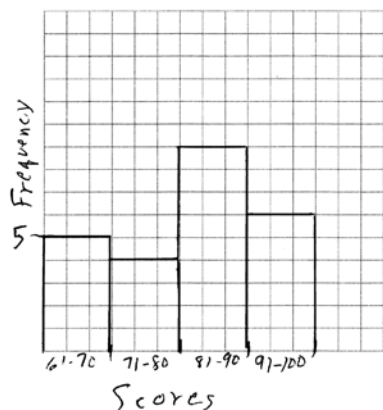
PTS: 2   REF: 081132ia   STA: A.S.5
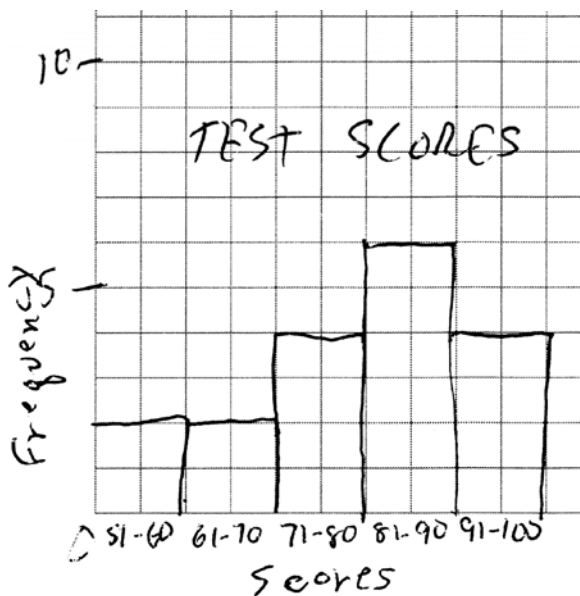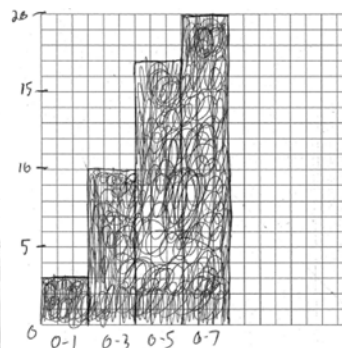TOP: Frequency Histograms, Bar Graphs and Tables   KEY: frequency histograms

35   ANS:

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

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

36 ANS:

Interval	Tally	Frequency
51–60	II	2
61–70	II	2
71–80	IIII	4
81–90	HHI I	6
91–100	IIII	4

PTS: 3 REF: 011135ia STA: A.S.5
TOP: Frequency Histograms, Bar Graphs and Tables KEY: frequency histograms

37 ANS:

Number of Days Outside

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

Number of Days Outside

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

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

38 ANS: 3
$25 - 18 = 7$

PTS: 2 REF: 060822ia STA: A.S.9
TOP: Frequency Histograms, Bar Graphs and Tables

39 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

40 ANS: 2
The median score, 10, is the vertical line in the center of the box.
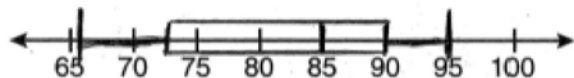
PTS: 2   REF: fall0709ia   STA: A.S.5   TOP: Box-and-Whisker Plots

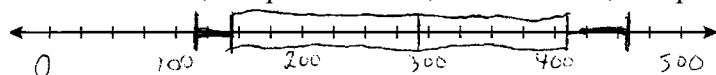41 ANS:

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

42 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

43 ANS: 3
The value of the third quartile is the last vertical line of the box.

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

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

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

45 ANS: 1   PTS: 2   REF: 011001ia   STA: A.S.6
TOP: Box-and-Whisker Plots

46 ANS: 3   PTS: 2   REF: 011220ia   STA: A.S.6
TOP: Box-and-Whisker Plots

47 ANS: 3
$75 - 15 = 60$

PTS: 2   REF: 011113ia   STA: A.S.6   TOP: Box-and-Whisker Plots

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

49 ANS: 4   PTS: 2   REF: 010929ia   STA: A.S.6
TOP: Box-and-Whisker Plots

50 ANS: 3   PTS: 2   REF: 061017ia   STA: A.S.11
TOP: Quartiles and Percentiles

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

52 ANS: 3   PTS: 2   REF: 081001ia   STA: A.S.7
TOP: Scatter Plots

53 ANS: 2   PTS: 2   REF: 061115ia   STA: A.S.7
TOP: Scatter Plots
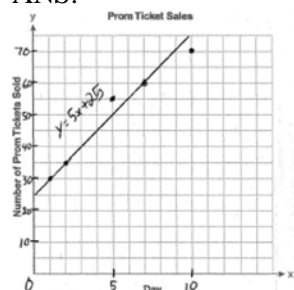
54 ANS: 4   PTS: 2   REF: 011229ia   STA: A.S.8
TOP: Scatter Plots

55 ANS: 4

Money Earned from Babysitting

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

56 ANS:

Prom Ticket Sales

$y = 5x + 25$

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

57 ANS: 4   PTS: 2   REF: 060805ia   STA: A.S.12
    TOP: Scatter Plots

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

59 ANS: 3   PTS: 2   REF: 011103ia   STA: A.S.12
    TOP: Scatter Plots

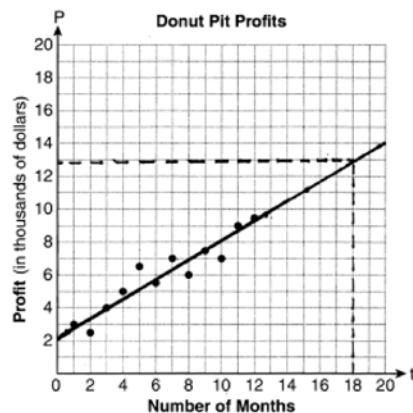60 ANS: 1   PTS: 2   REF: 081102ia   STA: A.S.12
    TOP: Scatter Plots

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

62 ANS:

Donut Pit Profits

They will not reach their goal in 18 months.

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

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

PTS: 2　　　　　REF: 080804ia　　　STA: A.S.4　　　　TOP: Central Tendency
64 ANS: 4
The mean is $80.\overline{6}$, the median is 84.5 and the mode is 87.

PTS: 2　　　　　REF: 010907ia　　　STA: A.S.4　　　　TOP: Central Tendency
65 ANS: 3
mean $= 81\dfrac{7}{11}$, median $= 81$ and mode $= 76$

PTS: 2　　　　　REF: 011118ia　　　STA: A.S.4　　　　TOP: Central Tendency
66 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
67 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
68 ANS:
81.3, 80, both increase

PTS: 3　　　　　REF: 011035ia　　　STA: A.S.16　　　TOP: Central Tendency
69 ANS:
12, 7. Both the median and the mode will increase.

PTS: 3　　　　　REF: 061134ia　　　STA: A.S.16　　　TOP: Central Tendency
70 ANS: 4
$$\frac{2+3+0+1+3+2+4+0+2+3}{10} = \frac{20}{10} = 2 \quad \frac{x}{10} = 2 + 0.5$$
$$x = 25$$

PTS: 2　　　　　REF: 081020ia　　　STA: A.S.16　　　TOP: Average Known with Missing Data
71 ANS: 3
The other situations are quantitative.

PTS: 2　　　　　REF: 060819ia　　　STA: A.S.1　　　　TOP: Analysis of Data
72 ANS: 3
The other situations are quantitative.

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

73 ANS: 4

The other situations are quantitative.

PTS: 2   REF: 081122ia   STA: A.S.1   TOP: Analysis of Data

74 ANS: 4

The other sets of data are qualitative.

PTS: 2   REF: 011116ia   STA: A.S.1   TOP: Analysis of Data

75 ANS: 2

The other sets of data are qualitative.

PTS: 2   REF: 011211ia   STA: A.S.1   TOP: Analysis of Data

76 ANS: 2

The two values are shoe size and height.

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

77 ANS: 3

Frequency is not a variable.

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

78 ANS: 3   PTS: 2   REF: 061011ia   STA: A.S.2

TOP: Analysis of Data

79 ANS: 1

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

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

80 ANS: 1

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

PTS: 2   REF: 010923ia   STA: A.S.3   TOP: Analysis of Data

81 ANS: 4

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

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

82 ANS: 4   PTS: 2   REF: 061022ia   STA: A.S.3

TOP: Analysis of Data

83 ANS: 1

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

PTS: 2   REF: 061107ia   STA: A.S.3   TOP: Analysis of Data

84 ANS: 3

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

PTS: 2   REF: 080908ia   STA: A.S.13   TOP: Analysis of Data

85 ANS: 1
A rooster crows before sunrise, not because of the sun.

PTS: 2 REF: fall0707ia STA: A.S.14 TOP: Analysis of Data
86 ANS: 3
The age of a child does not cause the number of siblings he has, or vice versa.

PTS: 2 REF: 011030ia STA: A.S.14 TOP: Analysis of Data
87 ANS: 3 PTS: 2 REF: 081017a STA: A.S.14
TOP: Analysis of Data
88 ANS: 2 PTS: 2 REF: 061122ia STA: A.S.14
TOP: Analysis of Data
89 ANS: 2 PTS: 2 REF: 081104ia STA: A.S.14
TOP: Analysis of Data
90 ANS: 1 PTS: 2 REF: fall0723ia STA: A.M.3
TOP: Error KEY: area
91 ANS: 2
$$\left| \frac{149.6 - 174.2}{149.6} \right| \approx 0.1644$$

PTS: 2 REF: 080926ia STA: A.M.3 TOP: Error
KEY: area
92 ANS: 2
$$\left| \frac{55.42 - 50.27}{55.42} \right| \approx 0.093$$

PTS: 2 REF: 081023ia STA: A.M.3 TOP: Error
KEY: area
93 ANS: 3
$$\frac{(12.3 \times 11.9) - (12.2 \times 11.8)}{12.3 \times 11.9} \approx 0.0165$$

PTS: 2 REF: 061120ia STA: A.M.3 TOP: Error
KEY: area
94 ANS: 2
$$\left| \frac{13.5 - 12.8}{13.5} \right| \approx 0.093$$

PTS: 2 REF: 081123ia STA: A.M.3 TOP: Error
KEY: area
95 ANS: 2
$$\left| \frac{(2.6 \times 6.9) - (2.5 \times 6.8)}{(2.6 \times 6.9)} \right| \approx 0.052$$

PTS: 2 REF: 011209ia STA: A.M.3 TOP: Error
KEY: area

96 ANS: 1

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

PTS: 2   REF: 080828ia   STA: A.M.3   TOP: Error
KEY: volume and surface area

97 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 $\left|\dfrac{9.261-8}{9.261}\right| \approx 0.14$.

PTS: 2   REF: 060928ia   STA: A.M.3   TOP: Error
KEY: volume and surface area

98 ANS:

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

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

99 ANS:

618.45, 613.44, 0.008. $21.7 \times 28.5 = 618.45$. $21.6 \times 28.4 = 613.44$. $\left|\dfrac{618.45-613.44}{613.44}\right| \approx 0.008$. An error of less

than 1% would seem to be insignificant.

PTS: 4   REF: 060838ia   STA: A.M.3   TOP: Error
KEY: area

100 ANS:

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

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

101 ANS:

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

PTS: 3   REF: 011036ia   STA: A.M.3   TOP: Error
KEY: volume and surface area

102 ANS:

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

PTS: 4   REF: 011137ia   STA: A.M.3   TOP: Error
KEY: volume and surface area

103 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

104 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

105 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

106 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

107 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

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

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

PTS: 2   REF: 061006ia   STA: A.S.21   TOP: Experimental Probability

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

PTS: 2   REF: 011129ia   STA: A.S.21   TOP: Experimental Probability

111 ANS:
$\frac{6}{25}$. $\frac{25-(11+5+3)}{25}$

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

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

113 ANS: 4

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

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

114 ANS: 3

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

PTS: 2　　　　REF: 081125ia　　STA: A.S.22　　TOP: Theoretical Probability

115 ANS:

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

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

116 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

117 ANS: 3　　　　PTS: 2　　　　REF: fall0702ia　　STA: A.S.23
TOP: Theoretical Probability　　　　KEY: mutually exclusive events

118 ANS: 2

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

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

PTS: 2　　　　REF: 080830ia　　STA: A.S.23　　TOP: Theoretical Probability
KEY: not mutually exclusive events

119 ANS: 3

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

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

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

PTS: 2　　　　REF: 081024ia　　STA: A.S.23　　TOP: Theoretical Probability
KEY: independent events

120 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

121 ANS: 2　　　　PTS: 2　　　　REF: 011212ia　　STA: A.S.23
TOP: Theoretical Probability　　　　KEY: independent events

122 ANS: 3   PTS: 2   REF: 080907ia   STA: A.S.20
TOP: Geometric Probability

123 ANS:

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

PTS: 2   REF: 011132ia   STA: A.S.20   TOP: Geometric Probability

124 ANS: 4

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

PTS: 2   REF: 060802ia   STA: A.S.22   TOP: Geometric Probability

125 ANS: 3

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

PTS: 2   REF: 061104ia   STA: A.S.22   TOP: Geometric Probability

126 ANS: 1

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

PTS: 2   REF: 010928ia   STA: A.S.23   TOP: Geometric Probability

127 ANS:

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

PTS: 2   REF: 080832ia   STA: A.S.23   TOP: Geometric Probability

128 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

129 ANS: 4
$5 \times 2 \times 3 = 30$

PTS: 2   REF: 061002ia   STA: A.N.7   TOP: Multiplication Counting Principle

130 ANS: 3
$(3 - 1) \times 2 \times 3 = 12$

PTS: 2   REF: 080905ia   STA: A.N.7   TOP: Conditional Probability

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

132 ANS: 4
$_5P_5 = 5 \times 4 \times 3 \times 2 \times 1 = 120$

PTS: 2   REF: 061109ia   STA: A.N.8   TOP: Permutations

133 ANS: 1
$_4P_4 = 4 \times 3 \times 2 \times 1 = 24$

PTS: 2　　　　REF: 080816ia　　STA: A.N.8　　　TOP: Permutations
134 ANS: 4
$_8P_3 = 336$

PTS: 2　　　　REF: 061026ia　　STA: A.N.8　　　TOP: Permutations
135 ANS: 3
$_6P_4 = 360$

PTS: 2　　　　REF: 081028ia　　STA: A.N.8　　　TOP: Permutations
136 ANS:
60. $_5P_3 = 60$

PTS: 2　　　　REF: 060931ia　　STA: A.N.8　　　TOP: Permutations
137 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
138 ANS: 4
$25(x - 3) = 25x - 75$

PTS: 2　　　　REF: 060823ia　　STA: A.A.1　　　TOP: Expressions
139 ANS: 2　　　　PTS: 2　　　　REF: 060904ia　　STA: A.A.1
TOP: Expressions
140 ANS: 3　　　　PTS: 2　　　　REF: 011104ia　　STA: A.A.1
TOP: Expressions
141 ANS: 1　　　　PTS: 2　　　　REF: 081110ia　　STA: A.A.1
TOP: Expressions
142 ANS: 3　　　　PTS: 2　　　　REF: 011205ia　　STA: A.A.1
TOP: Expressions
143 ANS: 4
$5(x + 4) = 5x + 20$

PTS: 2　　　　REF: 081013ia　　STA: A.A.1　　　TOP: Expressions
144 ANS: 4
$A = lw = (3w - 7)(w) = 3w^2 - 7w$

PTS: 2　　　　REF: 010924ia　　STA: A.A.1　　　TOP: Expressions
145 ANS: 4　　　　PTS: 2　　　　REF: fall0729ia　　STA: A.A.2
TOP: Expressions
146 ANS: 3　　　　PTS: 2　　　　REF: 061119ia　　STA: A.A.2
TOP: Expressions
147 ANS: 4　　　　PTS: 2　　　　REF: 061016ia　　STA: A.A.2
TOP: Expressions

148 ANS: 2   PTS: 2   REF: 011027ia   STA: A.A.3
     TOP: Expressions
149 ANS: 1   PTS: 2   REF: 081030ia   STA: A.A.3
     TOP: Expressions
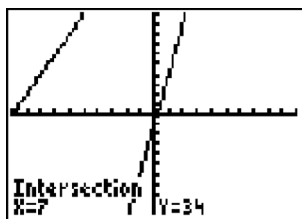150 ANS: 2   PTS: 2   REF: 061121ia   STA: A.A.3
     TOP: Expressions
151 ANS: 2   PTS: 2   REF: 011227ia   STA: A.A.3
     TOP: Expressions
152 ANS:
     Not all of the homework problems are equations. The first problem is an expression.

     PTS: 2   REF: 080931ia   STA: A.A.3   TOP: Expressions
153 ANS: 4

$5p - 1 = 2p + 20$

$3p = 21$

$p = 7$

     PTS: 2   REF: 080801ia   STA: A.A.22   TOP: Solving Equations
154 ANS: 1
     $2(x - 4) = 4(2x + 1)$

     $2x - 8 = 8x + 4$

     $-12 = 6x$

     $-2 = x$

     PTS: 2   REF: 011106ia   STA: A.A.22   TOP: Solving Equations
155 ANS: 2
     Debbie failed to distribute the 3 properly.

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

156 ANS:
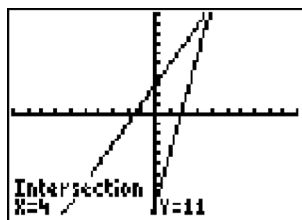
   4. $3 + 2g = 5g - 9$

        $12 = 3g$

        $g = 4$

PTS: 2   REF: fall0732ia   STA: A.A.22   TOP: Solving Equations

157 ANS: 1
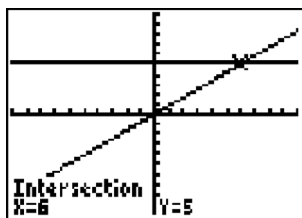
$$\frac{(2x \times 6) + (3 \times x)}{3 \times 6} = 5$$
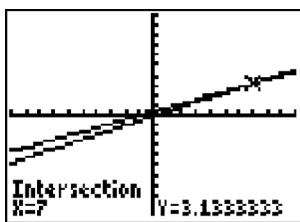
$$\frac{12x + 3x}{18} = 5$$

$$15x = 90$$

$$x = 6$$

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

158 ANS: 1

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

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

$$6x = 3$$

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

PTS: 2   REF: 011112ia   STA: A.A.25
TOP: Solving Equations with Fractional Expressions

159 ANS: 2

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

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

$3x+6 = 5x-20$

$26 = 2x$

$x = 13$

PTS: 2   REF: 080909ia   STA: A.A.25
TOP: Solving Equations with Fractional Expressions

160 ANS: 3

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

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

$5x+3 = 6x$

$3 = x$

PTS: 2   REF: 061019ia   STA: A.A.25
TOP: Solving Equations with Fractional Expressions

161 ANS: 4

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

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

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

$6x+5 = 7x-2$

$x = 7$

PTS: 2   REF: 080820ia   STA: A.A.25
TOP: Solving Equations with Fractional Expressions

162 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

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

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

165 ANS: 4   PTS: 2   REF: 081011ia   STA: A.A.5
TOP: Modeling Equations

166 ANS: 4

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

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

PTS: 2   REF: fall0726ia   STA: A.A.5   TOP: Modeling Equations

167 ANS: 4

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

$$2x - 4 = 48$$

$$x = 26$$

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

168 ANS:

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

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

$$14 = 2x$$

$$7 = x$$

PTS: 4   REF: 011237ia   STA: A.A.6   TOP: Modeling Equations

169 ANS: 3

$$3ax + b = c$$

$$3ax = c - b$$

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

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

170 ANS: 2

$$P = 2l + 2w$$

$$P - 2l = 2w$$

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

PTS: 2   REF: 010911ia   STA: A.A.23   TOP: Transforming Formulas

171 ANS: 4   PTS: 2   REF: 011016ia   STA: A.A.23
TOP: Transforming Formulas

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

173 ANS: 1

$$s = \frac{2x + t}{r}$$

$$rs = 2x + t$$

$$rs - t = 2x$$

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

PTS: 2   REF: 011228ia   STA: A.A.23   TOP: Transforming Formulas

174 ANS: 4

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

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

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

PTS: 2   REF: 011125ia   STA: A.A.23   TOP: Transforming Formulas

175 ANS: 3

$$a + ar = b + r$$

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

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

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

176 ANS:

$$bc + ac = ab$$

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

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

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

Integrated Algebra Regents Exam Questions by Performance Indicator: Topic
Answer Section

177 ANS: 3

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

$\qquad\qquad\qquad\qquad x = 5400$

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

178 ANS:

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

$\qquad\quad 25x = 54,000$

$\qquad\qquad x = 2,160$

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

179 ANS:

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

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

180 ANS: 4

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

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

181 ANS: 4

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

PTS: 2　　　　　　REF: 061025ia　　　STA: A.M.1　　　TOP: Speed

182 ANS: 1

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

PTS: 2　　　　　　REF: 061117ia　　　STA: A.M.1　　　TOP: Speed

183 ANS: 4

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

$5x = 360$

$\ x = 72$

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

184 ANS:

111.25. $\dfrac{\text{distance}}{\text{time}} = \dfrac{89}{0.8} = 111.25$

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

185 ANS:

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

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

186 ANS:

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

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

187 ANS:

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

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

188 ANS: 3

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

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

189 ANS: 4

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

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

190 ANS:

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

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

191 ANS:

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

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

192 ANS:

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

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

193 ANS: 2
Candidate *B* received 45%. $45\% \times 1860 = 837$

PTS: 2 REF: 081007ia STA: A.N.5 TOP: Percents

194 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

195 ANS:
30.4%; no, 23.3%. $\frac{7.50-5.75}{5.75} = 30.4\%$. $\frac{7.50-5.75}{7.50} = 23.3\%$

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

196 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

197 ANS: 4
$\frac{150}{20} = \frac{x}{30}$

$20x = 4500$

$x = 225$

PTS: 2 REF: 081101ia STA: A.N.5 TOP: Direct Variation

198 ANS:
$d = 6.25h$, 250. $d = 6.25(40) = 250$

PTS: 2 REF: 010933ia STA: A.N.5 TOP: Direct Variation
199 ANS: 2 PTS: 2 REF: 080823ia STA: A.A.32
TOP: Slope
200 ANS: 1 PTS: 2 REF: 081115ia STA: A.A.32
TOP: Slope
201 ANS: 4
$A(-3,4)$ and $B(5,8)$. $m = \frac{4-8}{-3-5} = \frac{-4}{-8} = \frac{1}{2}$

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

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

PTS: 2 REF: 081005ia STA: A.A.33 TOP: Slope

203 ANS: 3

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

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

204 ANS: 3

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

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

205 ANS: 2

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

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

206 ANS: 1

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

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

207 ANS: 2

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

PTS: 2 REF: 061004ia STA: A.A.33 TOP: Slope

208 ANS: 3

$$m = \frac{6 - 4}{3 - (-2)} = \frac{2}{5}$$

PTS: 2 REF: 061110ia STA: A.A.33 TOP: Slope

209 ANS: 4

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

PTS: 2 REF: 011215ia STA: A.A.33 TOP: Slope

210 ANS: 2

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

PTS: 2 REF: 011122ia STA: A.A.37 TOP: Slope

211 ANS: 2

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

$$x = 300$$

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

212 ANS: 1
$$y = mx + b$$
$$-6 = (-3)(4) + b$$
$$b = 6$$

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

213 ANS: 4
$$y = mx + b$$
$$-1 = (2)(3) + b$$
$$b = -7$$

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

214 ANS: 1
$$y = mx + b$$
$$5 = (-2)(1) + b$$
$$b = 7$$

PTS: 2 REF: 081108ia STA: A.A.34 TOP: Writing Linear Equations

215 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

216 ANS: 3 PTS: 2 REF: 010910ia STA: A.A.35
TOP: Writing Linear Equations

217 ANS: 1
$$m = \frac{3-0}{0-2} = -\frac{3}{2}.$$ Using the given y-intercept $(0,3)$ to write the equation of the line $y = -\frac{3}{2}x + 3$.

PTS: 2 REF: fall0713ia STA: A.A.35 TOP: Writing Linear Equations

218 ANS: 3
$$m = \frac{7-3}{-3-3} = \frac{4}{-6} = -\frac{2}{3} \quad y = mx + b$$
$$3 = -\frac{2}{3}(3) + b$$
$$3 = -2 + b$$
$$5 = b$$

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

219 ANS: 2

$m = \dfrac{5-3}{8-1} = \dfrac{2}{7}$ $y - y_1 = m(x - x_i)$

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

PTS: 2　　　　REF: 081029ia　　STA: A.A.35　　TOP: Writing Linear Equations

220 ANS:

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

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

$$b = 2$$

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

221 ANS: 1

$4y - 2x = 0$

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

$-4 + 4 = 0$

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

222 ANS: 4

$2x - 3y = 9$

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

$0 + 9 = 9$

PTS: 2　　　　REF: 081016ia　　STA: A.A.39　　TOP: Identifying Points on a Line

223 ANS: 4

$3y + 2x = 8$

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

$-6 + 14 = 8$

PTS: 2　　　　REF: 011218ia　　STA: A.A.39　　TOP: Identifying Points on a Line

224 ANS: 3

2(1)+3=5

PTS: 2　　　　REF: 061007ia　　STA: A.A.39　　TOP: Linear Equations

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

226 ANS: 1　　　　PTS: 2　　　　REF: 080911ia　　STA: A.A.36
TOP: Parallel and Perpendicular Lines

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

228 ANS: 4   PTS: 2   REF: 061112ia   STA: A.A.36
TOP: Parallel and Perpendicular Lines

229 ANS: 1
The slope of both is -4.

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

230 ANS: 1
The slope of $y = 3 - 2x$ is -2. Using $m = -\dfrac{A}{B}$, the slope of $4x + 2y = 5$ is $-\dfrac{4}{2} = -2$.

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

231 ANS: 1
The slope of $2x - 4y = 16$ is $\dfrac{-A}{B} = \dfrac{-2}{-4} = \dfrac{1}{2}$

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

232 ANS: 2
$y - kx = 7$ may be rewritten as $y = kx + 7$

PTS: 2   REF: 061015ia   STA: A.A.38   TOP: Parallel and Perpendicular Lines

233 ANS: 4
$-6x - 17 \geq 8x + 25$

$-42 \geq 14x$

$-3 \geq x$

PTS: 2   REF: 081121ia   STA: A.A.24   TOP: Solving Inequalities

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

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

$2m \leq 10$

$m \leq 5$

PTS: 2   REF: 081002ia   STA: A.A.24   TOP: Solving Inequalities

235 ANS:

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

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

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

$7x \geq 21$

$x \geq 3$

PTS: 3   REF: 011234ia   STA: A.A.24   TOP: Solving Inequalities

236 ANS: 1
$$-2x + 5 > 17$$
$$-2x > 12$$
$$x < -6$$

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

237 ANS: 4
$$-4x + 2 > 10$$
$$-4x > 8$$
$$x < -2$$

PTS: 2   REF: 080805ia   STA: A.A.21   TOP: Interpreting Solutions

238 ANS: 1
$$\frac{4}{3}x + 5 < 17$$
$$\frac{4}{3}x < 12$$
$$4x < 36$$
$$x < 9$$

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

239 ANS: 4
$$-2(x - 5) < 4$$
$$-2x + 10 < 4$$
$$-2x < -6$$
$$x > 3$$

PTS: 2   REF: 080913ia   STA: A.A.21   TOP: Interpreting Solutions

240 ANS:
$$-12. \ 3\left(\frac{2}{3}x + 3 < -2x - 7\right)$$
$$x + 9 < -6x - 21$$
$$7x < -30$$
$$x < \frac{-30}{7}$$

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

241 ANS: 1   PTS: 2   REF: 080803ia   STA: A.A.4
TOP: Modeling Inequalities

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

ID: A

243 ANS: 2 PTS: 2 REF: 060821ia STA: A.A.5
TOP: Modeling Inequalities
244 ANS: 2 PTS: 2 REF: 011005ia STA: A.A.5
TOP: Modeling Inequalities
245 ANS: 4 PTS: 2 REF: fall0715ia STA: A.A.5
TOP: Modeling Inequalities
246 ANS: 4 PTS: 2 REF: 081107ia STA: A.A.5
TOP: Modeling Inequalities
247 ANS: 1

$0.07m + 19 \le 29.50$

$0.07m \le 10.50$

$m \le 150$

PTS: 2 REF: 010904ia STA: A.A.6 TOP: Modeling Inequalities
248 ANS: 1

$13.95 + 0.49s \le 50.00$

$0.49s \le 36.05$

$s \le 73.57$

PTS: 2 REF: 080904ia STA: A.A.6 TOP: Modeling Inequalities
249 ANS:
7. $15x + 22 \ge 120$

$x \ge 6.5\overline{3}$

PTS: 3 REF: fall0735ia STA: A.A.6 TOP: Modeling Inequalities
250 ANS:
$10 + 2d \ge 75$, 33. $10 + 2d \ge 75$

$d \ge 32.5$

PTS: 3 REF: 060834ia STA: A.A.6 TOP: Modeling Inequalities
251 ANS:
$0.65x + 35 \le 45$

$0.65x \le 10$

$x \le 15$

PTS: 3 REF: 061135ia STA: A.A.6 TOP: Modeling Inequalities
252 ANS: 4 PTS: 2 REF: 061028ia STA: A.G.6
TOP: Linear Inequalities
253 ANS: 1 PTS: 2 REF: 011210ia STA: A.G.6
TOP: Linear Inequalities
254 ANS: 1 PTS: 2 REF: 060920ia STA: A.G.6
TOP: Linear Inequalities

9

255 ANS: 2

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

PTS: 2 REF: fall0720ia STA: A.G.6 TOP: Linear Inequalities

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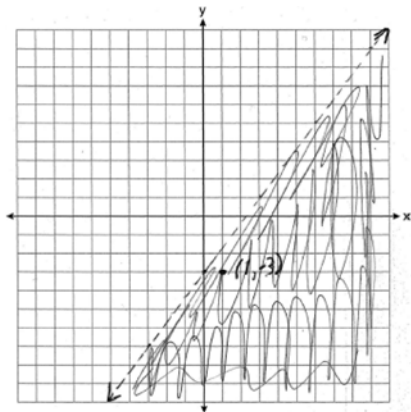
$(1,-3)$ is in the solution set. $4(1) - 3(-3) > 9$

$$4 + 9 > 9$$

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

257 ANS: 3 PTS: 2 REF: 011117ia STA: A.G.4
TOP: Graphing Absolute Value Functions

258 ANS: 4
The transformation is a reflection in the *x*-axis.

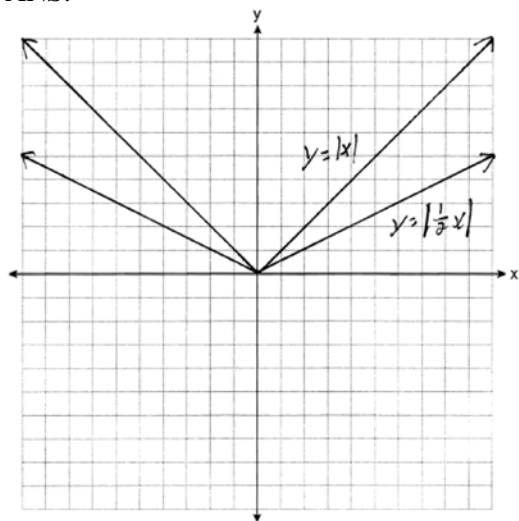PTS: 2 REF: 011206ia STA: A.G.5 TOP: Graphing Absolute Value Functions

259 ANS: 4
The transformation is a reflection in the *x*-axis.

PTS: 2 REF: fall0722ia STA: A.G.5 TOP: Graphing Absolute Value Functions

260 ANS: 3 PTS: 2 REF: 011017ia STA: A.G.5
TOP: Graphing Absolute Value Functions

261 ANS:

. Graph becomes wider as the coefficient approaches 0.

PTS: 3   REF: 061035ia   STA: A.G.5   TOP: Graphing Absolute Value Functions

262 ANS:
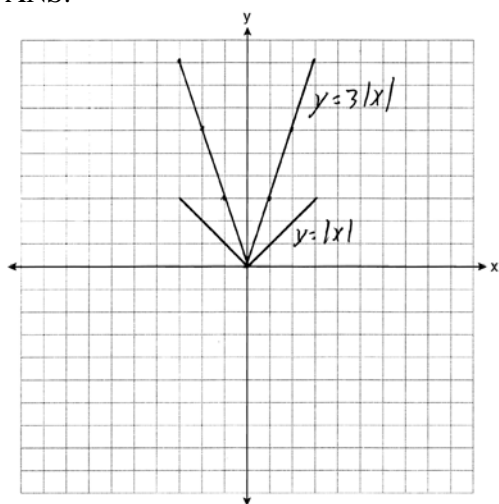
The graph becomes steeper.

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

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

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

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

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

266 ANS: 3   PTS: 2   REF: fall0706ia   STA: A.A.19
TOP: Factoring the Difference of Perfect Squares

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

268 ANS: 3   PTS: 2   REF: 081008ia   STA: A.A.19
    TOP: Factoring the Difference of Perfect Squares
269 ANS: 1   PTS: 2   REF: 060804ia   STA: A.A.19
    TOP: Factoring the Difference of Perfect Squares
270 ANS: 2   PTS: 2   REF: 010909ia   STA: A.A.19
    TOP: Factoring the Difference of Perfect Squares
271 ANS: 1   PTS: 2   REF: 080902ia   STA: A.A.19
    TOP: Factoring the Difference of Perfect Squares
272 ANS: 3   PTS: 2   REF: 061101ia   STA: A.A.19
    TOP: Factoring the Difference of Perfect Squares
273 ANS: 2

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

    PTS: 2   REF: 011108ia   STA: A.A.19
    TOP: Factoring the Difference of Perfect Squares
274 ANS: 2

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

    PTS: 2   REF: 081129ia   STA: A.A.19
    TOP: Factoring the Difference of Perfect Squares
275 ANS: 2   PTS: 2   REF: 011022ia   STA: A.A.19
    TOP: Factoring the Difference of Perfect Squares
276 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
277 ANS: 3

$x^2 - 6x = 0$

$x(x - 6) = 0$

$x = 0 \ x = 6$

    PTS: 2   REF: 080921ia   STA: A.A.27   TOP: Solving Quadratics by Factoring
278 ANS: 3

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

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

$x = 7 \ x = 3$

    PTS: 2   REF: 010914ia   STA: A.A.28   TOP: Roots of Quadratics

279 ANS: 4

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

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

$x = 6 \quad x = 1$

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

280 ANS: 2

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

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

$x = 3 \quad x = 2$

PTS: 2　　　　REF: 081120ia　　STA: A.A.28　　TOP: Roots of Quadratics

281 ANS: 1

$3x^2 - 27x = 0$

$3x(x - 9) = 0$

$x = 0, 9$

PTS: 2　　　　REF: 011223ia　　STA: A.A.28　　TOP: Roots of Quadratics

282 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.28　　TOP: Roots of Quadratics

283 ANS:

−15, 2　$x^2 + 13x - 30 = 0$

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

$x = -15, 2$

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

284 ANS: 2

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

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

$x = 5 \quad x = -3$

PTS: 2　　　　REF: 011128ia　　STA: A.A.28　　TOP: Roots of Quadratics

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

TOP: Graphing Quadratic Functions

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

287 ANS: 1 PTS: 2 REF: 081015ia STA: A.G.5
TOP: Graphing Quadratic Functions

288 ANS: 3 PTS: 2 REF: 060924ia STA: A.G.8
TOP: Solving Quadratics by Graphing

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

290 ANS: 4 PTS: 2 REF: 011111ia STA: A.G.8
TOP: Solving Quadratics by Graphing

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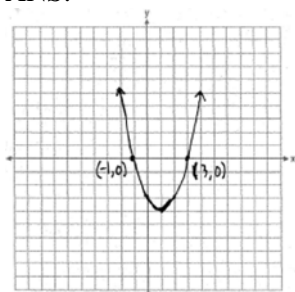
PTS: 3 REF: 060836ia STA: A.G.8 TOP: Solving Quadratics by Graphing

292 ANS: 1

$$x^2 - 36 = 5x$$

$$x^2 - 5x - 36 = 0$$

$$(x - 9)(x + 4) = 0$$

$$x = 9$$

PTS: 2 REF: 061020ia STA: A.A.8 TOP: Writing Quadratics

293 ANS: 3

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

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

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

$$d = 5$$

PTS: 2 REF: 011208ia STA: A.A.8 TOP: Writing Quadratics

294 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

295 ANS: 2

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

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

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

$$l = 8$$

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

296 ANS: 2

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

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

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

$$l = 8$$

PTS: 2   REF: 081116ia   STA: A.A.8   TOP: Geometric Applications of Quadratics

297 ANS:

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

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

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

$$w = 3$$

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

298 ANS: 1   PTS: 2   REF: 060811ia   STA: A.G.10

TOP: Identifying the Vertex of a Quadratic Given Graph

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

TOP: Identifying the Vertex of a Quadratic Given Graph

300 ANS: 2   PTS: 2   REF: 010916ia   STA: A.G.10

TOP: Identifying the Vertex of a Quadratic Given Graph

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

TOP: Identifying the Vertex of a Quadratic Given Graph

302 ANS: 1   PTS: 2   REF: 061005ia   STA: A.G.10

TOP: Identifying the Vertex of a Quadratic Given Graph

303 ANS:
$x = 1$; $(1, -5)$

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

304 ANS: 2   PTS: 2   REF: 081111ia   STA: A.G.10
TOP: Identifying the Vertex of a Quadratic Given Graph

305 ANS: 1
$x = \dfrac{-b}{2a} = \dfrac{-6}{2(-1)} = 3.$

PTS: 2   REF: 011127ia   STA: A.A.41
TOP: Identifying the Vertex of a Quadratic Given Equation

306 ANS: 1
$x = \dfrac{-b}{2a} = \dfrac{-(-3)}{2(2)} = \dfrac{3}{4}.$

PTS: 2   REF: 011219ia   STA: A.A.41
TOP: Identifying the Vertex of a Quadratic Given Equation

307 ANS: 3
$x = \dfrac{-b}{2a} = \dfrac{-10}{2(-1)} = 5.$

PTS: 2   REF: 081018ia   STA: A.A.41
TOP: Identifying the Vertex of a Quadratic Given Equation

308 ANS: 1
$x = \dfrac{-b}{2a} = \dfrac{-(-16)}{2(1)} = 8.$ $y = (8)^2 - 16(8) + 63 = -1$

PTS: 2   REF: 060918ia   STA: A.A.41
TOP: Identifying the Vertex of a Quadratic Given Equation

309 ANS:
$(-2, 11).$ $x = \dfrac{-b}{2a} = \dfrac{-(-8)}{2(-2)} = -2$
$y = -2(-2)^2 - 8(-2) + 3 = 11$

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

310 ANS: 2

$$x + 2y = 9$$

$$x - y = 3$$

$$3y = 6$$

$$y = 2$$

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

311 ANS: 1

$$x - 2y = 1$$

$$x + 4y = 7$$

$$-6y = -6$$

$$y = 1$$

PTS: 2 REF: 080920ia STA: A.A.10 TOP: Solving Linear Systems

312 ANS: 2

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

$$2x + y = 8$$

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

$$7y = 14$$

$$y = 2$$

PTS: 2 REF: 081021ia STA: A.A.10 TOP: Solving Linear Systems

313 ANS: 3

$$5x + 2y = 48$$

$$3x + 2y = 32$$

$$2x = 16$$

$$x = 8$$

PTS: 2 REF: fall0708ia STA: A.A.10 TOP: Solving Linear Systems

314 ANS: 3

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

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

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

$$y = -1$$

PTS: 2 REF: 081109ia STA: A.A.10 TOP: Solving Linear Systems

315 ANS: 3

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

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

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

$$d = 2$$

PTS: 2 REF: 061012ia STA: A.A.10 TOP: Solving Linear Systems

316 ANS:

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

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

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

$$x = -2$$

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

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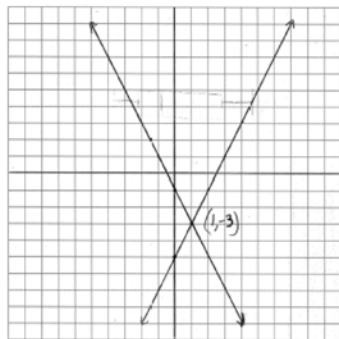
PTS: 4 REF: 080938ia STA: A.G.7 TOP: Solving Linear Systems

318 ANS:
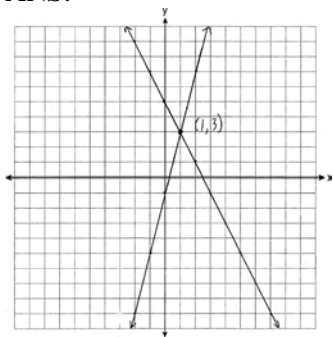
PTS: 3 REF: 011235ia STA: A.G.7 TOP: Solving Linear Systems

319 ANS: 2

$$L + S = 47$$

$$L - S = 15$$

$$2L = 62$$

$$L = 31$$

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

320 ANS: 1

$$f + m = 53$$

$$f - m = 25$$

$$2m = 28$$

$$m = 14$$

PTS: 2 REF: 061126ia STA: A.A.7 TOP: Writing Linear Systems

321 ANS: 3

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

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

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

$$3r = 87$$

$$r = 29$$

PTS: 2 REF: 060812ia STA: A.A.7 TOP: Writing Linear Systems

322 ANS: 1

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

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

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

PTS: 2 REF: 081119ia STA: A.A.7 TOP: Writing Linear Systems

323 ANS: 2

$$s + o = 126. \quad s + 2s = 126$$

$$o = 2s \qquad s = 42$$

PTS: 2 REF: 080811ia STA: A.A.7 TOP: Writing Linear Systems

324 ANS: 1

$$1P + 2C = 5$$

$$1P + 4C = 6$$

$$2C = 1$$

$$C = 0.5$$

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

325 ANS: 2

$$3c + 4m = 12.50$$

$$3c + 2m = 8.50$$

$$2m = 4.00$$

$$m = 2.00$$

PTS: 2 REF: 060806ia STA: A.A.7 TOP: Writing Linear Systems

326 ANS: 2

$$J - M = 3$$

$$8J + 8M = 120$$

$$8J - 8M = 24$$

$$16J = 144$$

$$J = 9$$

PTS: 2 REF: 011115ia STA: A.A.7 TOP: Writing Linear Systems

327 ANS: 1

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

$$7f + 10 = 1424$$

$$f = 202$$

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

328 ANS:

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

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

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

$$m = \$0.50$$

PTS: 4 REF: 080837ia STA: A.A.7 TOP: Writing Linear Systems

329 ANS: 1 PTS: 2 REF: 061010ia STA: A.A.40
TOP: Systems of Linear Inequalities

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

331 ANS: 4 PTS: 2 REF: 080825ia STA: A.A.40
TOP: Systems of Linear Inequalities

332 ANS: 2 PTS: 2 REF: 011023ia STA: A.A.40
TOP: Systems of Linear Inequalities
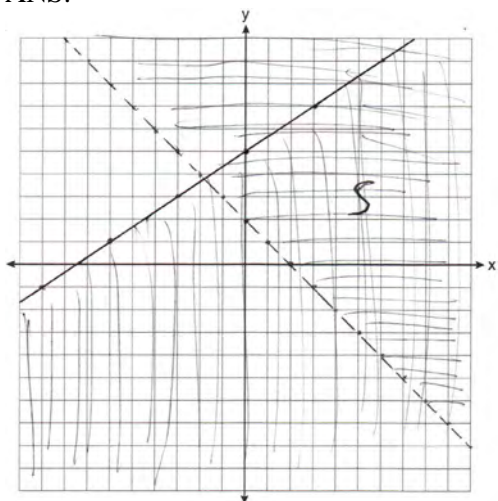
333 ANS:
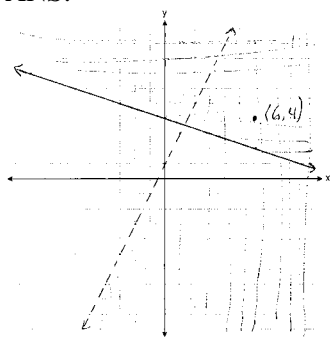
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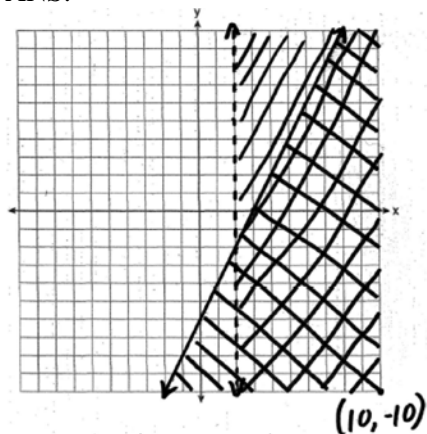
334 ANS:

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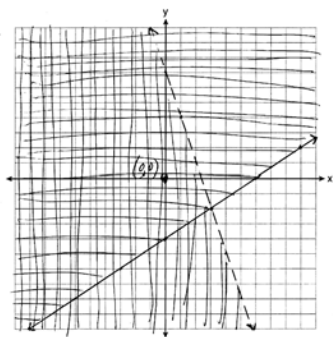
335 ANS:

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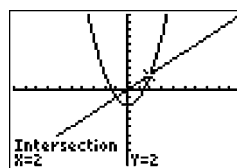
336 ANS:

PTS: 4   REF: 061139ia   STA: A.G.7   TOP: Systems of Linear Inequalities

337 ANS: 4

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

$x^2 - x - 2 = 0$

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

$x = 2 \text{ or } -1$
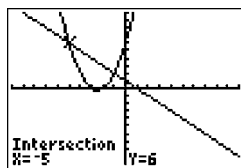
PTS: 2   REF: 060810ia   STA: A.A.11   TOP: Quadratic-Linear Systems

338 ANS: 2

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

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

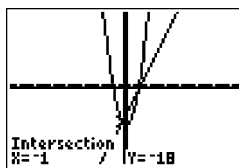$(x + 5)(x + 1) = 0$ $= 6$

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

PTS: 2   REF: 080812ia   STA: A.A.11   TOP: Quadratic-Linear Systems

339 ANS: 2

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

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

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

$x = 5 \text{ or } -1$
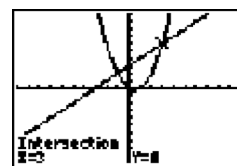
PTS: 2   REF: 010922ia   STA: A.A.11   TOP: Quadratic-Linear Systems

340 ANS: 2

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

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

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

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

PTS: 2   REF: 061118ia   STA: A.A.11   TOP: Quadratic-Linear Systems

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

342 ANS: 1   PTS: 2   REF: 011207ia   STA: A.G.9
TOP: Quadratic-Linear Systems

343 ANS: 1

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

$2y = 2x + 10$

$y = x + 5$

PTS: 2   REF: 081010ia   STA: A.G.9   TOP: Quadratic-Linear Systems

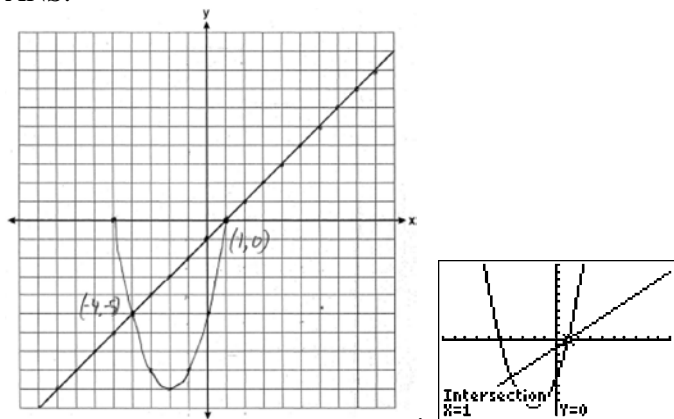344 ANS: 4   PTS: 2   REF: 011102ia   STA: A.G.9
TOP: Quadratic-Linear Systems

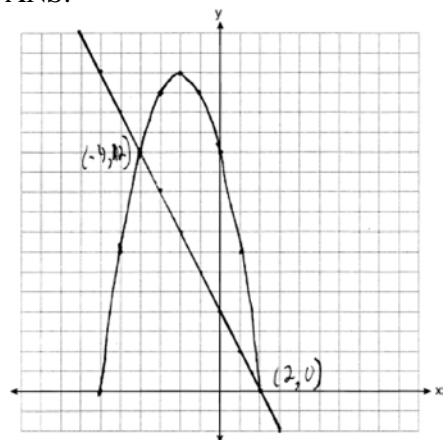345 ANS:

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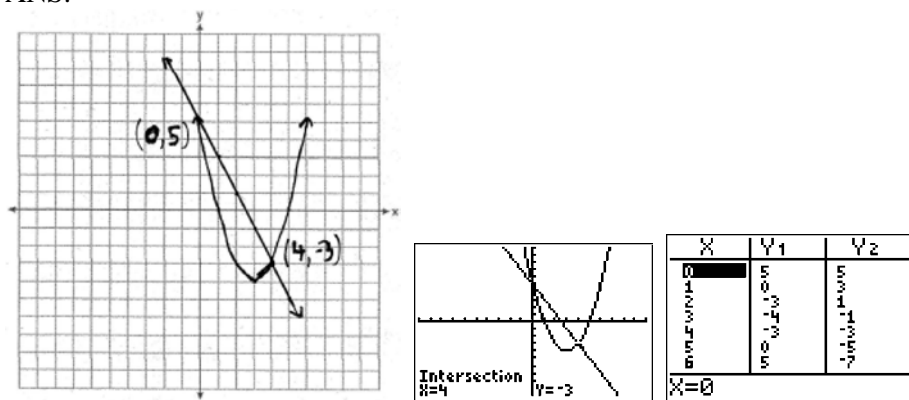
346 ANS:

PTS: 4   REF: 061039ia   STA: A.G.9   TOP: Quadratic-Linear Systems
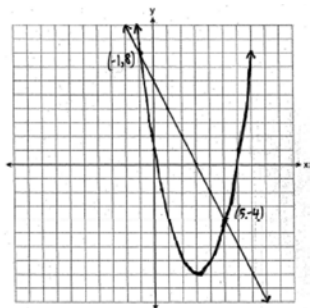
347 ANS:

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

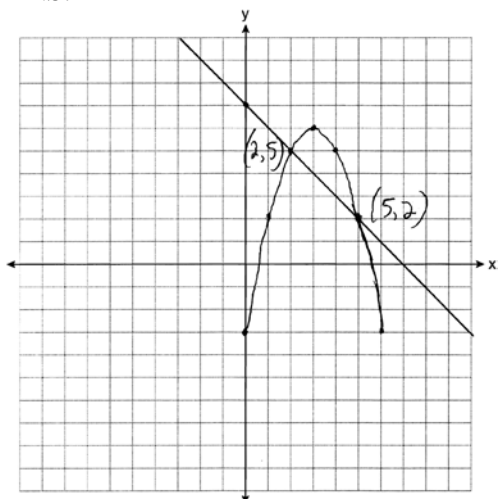348 ANS:

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

349 ANS:

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

350 ANS: 4

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

PTS: 2   REF: 081114ia   STA: A.A.13   TOP: Addition and Subtraction of Monomials

351 ANS: 3   PTS: 2   REF: 061003ia   STA: A.A.13
    TOP: Addition and Subtraction of Polynomials   KEY: addition

352 ANS: 1   PTS: 2   REF: 011213ia   STA: A.A.13
    TOP: Addition and Subtraction of Polynomials   KEY: addition

353 ANS: 3   PTS: 2   REF: 080819ia   STA: A.A.13
    TOP: Addition and Subtraction of Polynomials   KEY: subtraction

354 ANS: 2   PTS: 2   REF: 060923ia   STA: A.A.13
    TOP: Addition and Subtraction of Polynomials   KEY: subtraction

355 ANS: 1   PTS: 2   REF: 011126ia   STA: A.A.13
    TOP: Addition and Subtraction of Polynomials   KEY: subtraction

356 ANS: 4   PTS: 2   REF: 061130ia   STA: A.A.13
    TOP: Addition and Subtraction of Polynomials   KEY: subtraction

357 ANS: 1   PTS: 2   REF: 060807ia   STA: A.A.13
    TOP: Multiplication of Polynomials

358   ANS: 3

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

   PTS: 2   REF: 011011ia   STA: A.A.14   TOP: Division of Polynomials

359   ANS:

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

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

360   ANS: 4   PTS: 2   REF: 011020ia   STA: A.A.12
   TOP: Multiplication of Powers

361   ANS: 4   PTS: 2   REF: 080903ia   STA: A.A.12
   TOP: Multiplication of Powers

362   ANS: 4

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

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

363   ANS: 1   PTS: 2   REF: 060903ia   STA: A.A.12
   TOP: Division of Powers

364   ANS: 4   PTS: 2   REF: 061018ia   STA: A.A.12
   TOP: Division of Powers

365   ANS: 1   PTS: 2   REF: 061103ia   STA: A.A.12
   TOP: Division of Powers

366   ANS: 3

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

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

367   ANS:

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

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

368   ANS: 4   PTS: 2   REF: 080827ia   STA: A.A.12
   TOP: Powers of Powers

369   ANS: 3

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

   PTS: 2   REF: 011124ia   STA: A.A.12   TOP: Powers of Powers

370 ANS: 4

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

PTS: 2   REF: 011216ia   STA: A.A.12   TOP: Powers of Powers

371 ANS: 4   PTS: 2   REF: 010927ia   STA: A.N.4
TOP: Operations with Scientific Notation

372 ANS: 4   PTS: 2   REF: 060927ia   STA: A.N.4
TOP: Operations with Scientific Notation

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

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

375 ANS: 4

$$\frac{9.2 \times 10^6}{2.3 \times 10^2} = 4 \times 10^4$$

PTS: 2   REF: 081006ia   STA: A.N.4   TOP: Operations with Scientific Notation

376 ANS: 1   PTS: 2   REF: 011202ia   STA: A.A.9
TOP: Exponential Functions

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

378 ANS: 4   PTS: 2   REF: 010908ia   STA: A.A.9
TOP: Exponential Functions

379 ANS: 2

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

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

380 ANS: 3

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

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

381 ANS: 2

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

PTS: 2   REF: 081124ia   STA: A.A.9   TOP: Exponential Functions

382 ANS: 1

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

PTS: 2   REF: 061030ia   STA: A.A.9   TOP: Exponential Functions

383 ANS: 3

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

PTS: 2   REF: fall0719ia   STA: A.A.9   TOP: Exponential Functions

384 ANS: 2

$20000(.88)^3 = 13629.44$

PTS: 2 REF: 061124ia STA: A.A.9 TOP: Exponential Functions

385 ANS:

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

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

386 ANS:

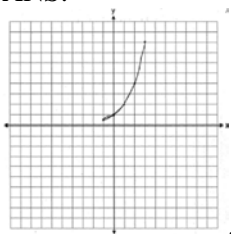$5,583.86. \ A = P(1 + R)^t = 5000(1 + 0.0375)^3 \approx 5583.86$

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

387 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

388 ANS: 2

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

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

389 ANS: 3

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

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

390 ANS: 3

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

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

391 ANS: 3

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

PTS: 2 REF: 061106ia STA: A.N.2 TOP: Simplifying Radicals

392 ANS: 1

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

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

393 ANS: 2

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

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

394 ANS:

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

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

395 ANS:

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

PTS: 2   REF: 081033ia   STA: A.N.2   TOP: Simplifying Radicals

Integrated Algebra Regents Exam Questions by Performance Indicator: Topic
Answer Section

396 ANS: 3

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

PTS: 2   REF: 011121ia   STA: A.N.3   TOP: Operations with Radicals
KEY: addition

397 ANS: 3

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

PTS: 2   REF: 061008ia   STA: A.N.3   TOP: Operations with Radicals
KEY: subtraction

398 ANS: 4

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

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

399 ANS:

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

PTS: 3   REF: 081136ia   STA: A.N.3   TOP: Operations with Radicals

400 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

401 ANS: 2

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

PTS: 2   REF: fall0718ia   STA: A.A.16   TOP: Rational Expressions
KEY: $a > 0$

402 ANS: 2

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

PTS: 2   REF: 060824ia   STA: A.A.16   TOP: Rational Expressions
KEY: $a > 0$

403 ANS: 4

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

PTS: 2   REF: 080821ia   STA: A.A.16   TOP: Rational Expressions
KEY: $a > 0$

404 ANS: 2

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

PTS: 2   REF: 060921ia   STA: A.A.16   TOP: Rational Expressions
KEY: $a > 0$

405 ANS: 1

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

PTS: 2   REF: 011130ia   STA: A.A.16   TOP: Rational Expressions
KEY: $a > 0$

406 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   TOP: Rational Expressions
KEY: $a > 0$

407 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: $a > 0$

408 ANS: 3   PTS: 2   REF: 060817ia   STA: A.A.15
TOP: Undefined Rationals

409 ANS: 4   PTS: 2   REF: 060916ia   STA: A.A.15
TOP: Undefined Rationals

410 ANS: 1   PTS: 2   REF: fall0728ia   STA: A.A.15
TOP: Undefined Rationals

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

412 ANS: 3

$$x^2 - 9 = 0$$

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

$$x = \pm 3$$

PTS: 2   REF: 061014ia   STA: A.A.15   TOP: Undefined Rationals

413 ANS: 1
$$x^2 + 7x + 10 = 0$$
$$(x + 5)(x + 2) = 0$$
$$x = -5 \text{ or } -2$$

PTS: 2　　　　REF: 080918ia　　　STA: A.A.15　　　TOP: Undefined Rationals

414 ANS: 4
$$x^2 - 4x - 12 = 0$$
$$(x - 6)(x + 2) = 0$$
$$x = 6 \quad x = -2$$

PTS: 2　　　　REF: 061125ia　　　STA: A.A.15　　　TOP: Undefined Rationals

415 ANS: 1
$$x^2 + 5x - 6 = 0$$
$$(x + 6)(x - 1) = 0$$
$$x = -6, 1$$

PTS: 2　　　　REF: 011214ia　　　STA: A.A.15　　　TOP: Undefined Rationals

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

PTS: 2　　　　REF: 060815ia　　　STA: A.A.18　　　TOP: Multiplication and Division of Rationals
KEY: multiplication

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

PTS: 2　　　　REF: 080826ia　　　STA: A.A.18　　　TOP: Multiplication and Division of Rationals
KEY: multiplication

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

PTS: 2　　　　REF: 081130ia　　　STA: A.A.18　　　TOP: Multiplication and Division of Rationals
KEY: division

419 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

420 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

421 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

422 ANS: 3

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

PTS: 2   REF: 081027ia   STA: A.A.17   TOP: Addition and Subtraction of Rationals

423 ANS: 4

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

PTS: 2   REF: fall0727ia   STA: A.A.17   TOP: Addition and Subtraction of Rationals

424 ANS: 2

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

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

425 ANS: 2

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

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

426 ANS: 2

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

PTS: 2   REF: 080917ia   STA: A.A.17   TOP: Addition and Subtraction of Rationals

427 ANS: 2

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

PTS: 2   REF: 011120ia   STA: A.A.17   TOP: Addition and Subtraction of Rationals

428 ANS: 4

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

PTS: 2   REF: 061129ia   STA: A.A.17   TOP: Addition and Subtraction of Rationals

429 ANS: 4   PTS: 2   REF: 011025ia   STA: A.A.17
TOP: Addition and Subtraction of Rationals

430 ANS: 1   PTS: 2   REF: 061024ia   STA: A.A.17
TOP: Addition and Subtraction of Rationals

431 ANS: 2

$$\frac{2y}{y+5} + \frac{10}{y+5} = \frac{2y + 10}{y+5} = \frac{2(y+5)}{y+5} = 2$$
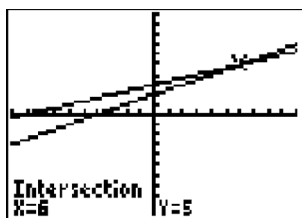
PTS: 2   REF: 011230ia   STA: A.A.17   TOP: Addition and Subtraction of Rationals

432 ANS: 3

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

$$3(k+4) = 2(k+9)$$
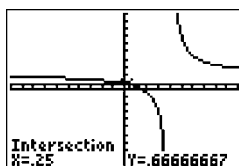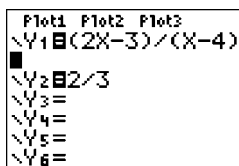
$$3k + 12 = 2k + 18$$

$$k = 6$$

PTS: 2   REF: 010906ia   STA: A.A.26   TOP: Solving Rationals

433 ANS: 2

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

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

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

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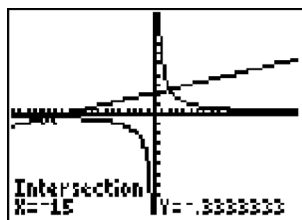
$$x = \frac{1}{4}$$

PTS: 2   REF: 081012ia   STA: A.A.26   TOP: Solving Rationals

434   ANS: 4

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

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

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

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

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

PTS: 2   REF: 060826ia   STA: A.A.26   TOP: Solving Rationals

435   ANS: 4
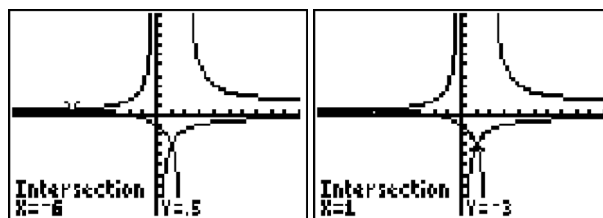
$$\frac{x+2}{x-2} = \frac{-3}{x}$$

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

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

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

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

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

PTS: 2   REF: 011028ia   STA: A.A.26   TOP: Solving Rationals

436   ANS: 1

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

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

$$x = -8$$

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

437 ANS:

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

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

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

$x^2 + x - 20 = 0$

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

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

PTS: 3   REF: 011136ia   STA: A.A.26   TOP: Solving Rationals

438 ANS:

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

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

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

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

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

$x = 6 \text{ or } -2$
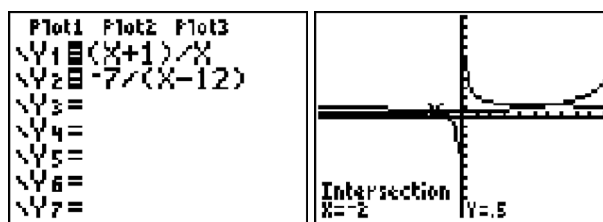
PTS: 4   REF: fall0739ia   STA: A.A.26   TOP: Solving Rationals

439 ANS:

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

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

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

$12x = -4x - 36$

$16x = -36$

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

PTS: 4   REF: 061137ia   STA: A.A.26   TOP: Solving Rationals

440 ANS: 4   PTS: 2   REF: fall0717ia   STA: A.G.4
TOP: Families of Functions

441 ANS: 1 PTS: 2 REF: 060801ia STA: A.G.4
TOP: Families of Functions
442 ANS: 4 PTS: 2 REF: 081025ia STA: A.G.4
TOP: Families of Functions
443 ANS: 4 PTS: 2 REF: 061111ia STA: A.G.4
TOP: Families of Functions
444 ANS: 1 PTS: 2 REF: 010905ia STA: A.G.4
TOP: Families of Functions
445 ANS: 3 PTS: 2 REF: 081118ia STA: A.G.4
TOP: Families of Functions
446 ANS: 3 PTS: 2 REF: 080925ia STA: A.G.4
TOP: Identifying the Equation of a Graph
447 ANS: 4 PTS: 2 REF: fall0730ia STA: A.G.3
TOP: Defining Functions
448 ANS: 4 PTS: 2 REF: 010930ia STA: A.G.3
TOP: Defining Functions
449 ANS: 4 PTS: 2 REF: 061013ia STA: A.G.3
TOP: Defining Functions
450 ANS: 3 PTS: 2 REF: 011204ia STA: A.G.3
TOP: Defining Functions
451 ANS: 3 PTS: 2 REF: 060919ia STA: A.G.3
TOP: Defining Functions
452 ANS: 3

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

PTS: 2 REF: 080919ia STA: A.G.3 TOP: Defining Functions
453 ANS: 4

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

PTS: 2 REF: 011018ia STA: A.G.3 TOP: Defining Functions
454 ANS: 4

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

PTS: 2 REF: 011105ia STA: A.G.3 TOP: Defining Functions
455 ANS: 2

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

PTS: 2 REF: 061116ia STA: A.G.3 TOP: Defining Functions
456 ANS: 3 PTS: 2 REF: 060825ia STA: A.A.45
TOP: Pythagorean Theorem
457 ANS: 1

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

$2500 = c^2$

$50 = c$

PTS: 2 REF: fall0711ia STA: A.A.45 TOP: Pythagorean Theorem

458 ANS: 1
$$8^2 + 15^2 = c^2$$
$$c^2 = 289$$
$$c = 17$$

PTS: 2   REF: 080906ia   STA: A.A.45   TOP: Pythagorean Theorem

459 ANS: 3
$$3^2 + 5^2 = x^2$$
$$34 = x^2$$
$$\sqrt{34} = x$$

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

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

PTS: 2   REF: 081004ia   STA: A.A.45   TOP: Pythagorean Theorem

461 ANS: 3
$$10^2 + 10^2 = c^2$$
$$c^2 = 200$$
$$c \approx 14.1$$

PTS: 2   REF: 061102ia   STA: A.A.45   TOP: Pythagorean Theorem

462 ANS: 2
$$\sqrt{18.4^2 - 7^2} \approx 17$$

PTS: 2   REF: 011107ia   STA: A.A.45   TOP: Pythagorean Theorem

463 ANS: 1
$$\sqrt{1700^2 - 1300^2} \approx 1095$$

PTS: 2   REF: 011221ia   STA: A.A.45   TOP: Pythagorean Theorem

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

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

465 ANS: 2

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

PTS: 2   REF: 010919ia   STA: A.A.42   TOP: Trigonometric Ratios

466 ANS: 1

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

PTS: 2   REF: 011109ia   STA: A.A.42   TOP: Trigonometric Ratios

467 ANS: 2

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

PTS: 2   REF: 081112ia   STA: A.A.42   TOP: Trigonometric Ratios

468 ANS: 3

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

PTS: 2   REF: 011226ia   STA: A.A.42   TOP: Trigonometric Ratios

469 ANS: 2

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

PTS: 2   REF: 081026ia   STA: A.A.42   TOP: Trigonometric Ratios

470 ANS: 3

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

PTS: 2   REF: 011008ia   STA: A.A.42   TOP: Trigonometric Ratios

471 ANS: 1

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

PTS: 2   REF: fall0721ia   STA: A.A.42   TOP: Trigonometric Ratios

472 ANS: 2

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

PTS: 2   REF: 061009ia   STA: A.A.42   TOP: Trigonometric Ratios

473 ANS: 3

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

$$x \approx 21$$

PTS: 2   REF: 010912ia   STA: A.A.44   TOP: Using Trigonometry to Find a Side

474 ANS: 2

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

$$x \approx 15.6$$

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

475 ANS: 2

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

$$x \approx 6.7$$

PTS: 2   REF: 061108ia   STA: A.A.44   TOP: Using Trigonometry to Find a Side

476 ANS: 2

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

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

PTS: 2   REF: 081126ia   STA: A.A.44   TOP: Using Trigonometry to Find a Side

477 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

478 ANS:

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

$$x \approx 39 \qquad x \approx 63$$

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

479 ANS:

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

$$x \approx 84 \qquad y \approx 71$$

PTS: 4   REF: 081039ia   STA: A.A.44   TOP: Using Trigonometry to Find a Side

480 ANS: 1   PTS: 2   REF: 080824ia   STA: A.A.43
TOP: Using Trigonometry to Find an Angle

481 ANS: 3

$\sin A = \dfrac{10}{16}$ $B = 180 - (90 = 38.7) = 51.3.$ A 90º angle is not acute.

   $A \approx 38.7$

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

482 ANS: 1   PTS: 2   REF: 061114ia   STA: A.A.43
TOP: Using Trigonometry to Find an Angle

483 ANS: 2

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

   $A \approx 42$

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

484 ANS:

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

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

   $x \approx 37$

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

485 ANS:

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

      $A \approx 41.8$

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

486 ANS:

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

      $A \approx 53$

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

487 ANS: 1   PTS: 2   REF: 080924ia   STA: A.G.1
TOP: Compositions of Polygons and Circles   KEY: perimeter

488 ANS: 2   PTS: 2   REF: 080815ia   STA: A.G.1
TOP: Compositions of Polygons and Circles   KEY: area

489 ANS: 2

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

PTS: 2   REF: 061029ia   STA: A.G.1   TOP: Compositions of Polygons and Circles
KEY: area

490 ANS: 2

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

PTS: 2   REF: 011123ia   STA: A.G.1   TOP: Compositions of Polygons and Circles
KEY: area

491 ANS: 2

shaded = whole − unshaded

$$= \text{rectangle-triangle}$$

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

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

$$= 90 - 34.5$$

$$= 55.5$$

PTS: 2   REF: 081019ia   STA: A.G.1   TOP: Compositions of Polygons and Circles
KEY: area

492 ANS: 1

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

PTS: 2   REF: 081128ia   STA: A.G.1   TOP: Compositions of Polygons and Circles
KEY: perimeter

493 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. $A = \pi r^2 = 3^2 \pi = 9\pi$

PTS: 2   REF: 011217ia   STA: A.G.1   TOP: Compositions of Polygons and Circles
KEY: area

494 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

495 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
KEY: perimeter

496 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

497 ANS:

56. If the circumference of circle O is 16ð 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

498 ANS: 2

$1.5^3 = 3.375$

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

499 ANS: 4

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

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

500 ANS: 3

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

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

501 ANS:

$\frac{38}{\pi}$, 2. $V = \pi r^2 h$. $\dfrac{36}{\left(\dfrac{38}{\pi}\right)} \approx 2.97$. 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

502 ANS:

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

PTS: 2   REF: 080932ia   STA: A.G.2   TOP: Volume

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

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

504   ANS: 4
SA $= 2lw + 2hw + 2lh = 2(3)(1.5) + 2(2)(1.5) + 2(3)(2) = 27$

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

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

PTS: 3   REF: 081035ia   STA: A.G.2   TOP: Surface Area

506   ANS:
147.75 $2 \times 5.5 \times 3 + 2 \times 6.75 \times 3 + 2 \times 5.5 \times 6.75 = 147.75$

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

507   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