

ACTAAP

Arkansas Comprehensive Testing, Assessment, and Accountability Program

TEACHER HANDBOOK

ALGEBRA I END-OF-COURSE EXAMINATIONS

2013–2014 ADMINISTRATIONS

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Arkansas Department of Education

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The **Arkansas Comprehensive Testing, Assessment, and Accountability Program** (ACTAAP) includes *Mid-Year* and *Spring Algebra I End-of-Course Examinations* for students completing Algebra I or the equivalent for high school graduation credit. In addition to the Mid-Year administration, a *Fall Algebra I End-of-Course Examination* and Fall and Spring administrations of the Online Alternative Test for Algebra I were offered for students who were retesting in Algebra I. The examinations consist of questions that directly assess student knowledge. The Fall, Mid-Year, and Spring examinations consist of both multiple-choice and open-response questions while the online examinations consist of only multiple-choice questions. The development of the Algebra I End-of-Course Examinations was based on the *Arkansas Algebra I Mathematics Curriculum Framework*.

In January or May 2014, all students who had completed or were completing the required course work for Algebra I for high school graduation credit participated in the *Mid-Year* or *Spring Algebra I End-of-Course Examination*. Students retesting in Algebra I were also provided the opportunity to test with the *Fall* and/or *Mid-Year Algebra I End-of-Course Examination* and/or the Online Alternative Test for Algebra I. Results of the Algebra I End-of-Course Examination will be provided to all students, schools, and districts to be used as the basis for instructional change.

This handbook provides information regarding the scoring of student responses to the Algebra I open-response items. It describes the scoring procedures and the scoring criteria (rubrics) used to assess student responses. Copies of actual student responses are provided, along with scores given to those responses, to illustrate how the scoring criteria were applied to Algebra I open-response items.

Additional information about the Algebra I End-of-Course Examination is available through the Arkansas Department of Education. Questions can be addressed to the Office of Student Assessment at 501-682-4558.

SCORING STUDENT RESPONSES TO OPEN-RESPONSE ITEMS

The multiple-choice and open-response test items for the Algebra I End-of-Course Examination are developed with the assistance and approval of the Algebra I Content Advisory Committee. This committee comprises active Arkansas educators with expertise in Mathematics education. The Algebra I Content Advisory Committee develops and reviews multiple-choice and open-response items to ensure that they reflect the *Arkansas Algebra I Mathematics Curriculum Framework*.

While multiple-choice items are scored by machine to determine if the student chose the correct answer from four options, responses to open-response items must be scored by trained “readers” using a pre-established set of scoring criteria.

READER TRAINING

Readers are trained to score only one content area. Qualified readers for the Arkansas scoring will be those with a four-year college degree in mathematics, education, or related fields.

Before readers are allowed to begin assigning scores to any student responses, they go through intensive training. The first step in that training is for the readers to read the Algebra I open-response items as they appear in the test booklet and to respond—just as the student test takers are required to do. This step gives the readers some insight into how the students might have responded. The next step is the readers’ introduction to the scoring rubric. All of the specific requirements of the rubric are explained by the Scoring Director who has been specifically trained to lead the scoring group. Then responses (anchor papers) that illustrate the score points of the rubric are presented to the readers and discussed. The goal of this discussion is for the readers to understand why a particular response (or type of response) receives a particular score. After discussion of the rubric and anchor papers, readers practice scoring sets of responses that have been prescored and selected for use as training papers. Detailed discussion of the responses and the scores they receive follows.

After three or four of these practice sets, readers are given “qualifying rounds.” These are additional sets of prescored papers, and, in order to qualify, each reader scoring Algebra I responses must score in exact agreement on at least 80% of the responses. Readers who do not score within the required rate of agreement are not allowed to score the Algebra I End-of-Course Examination responses.

Once scoring of the actual student responses begins, readers are monitored constantly throughout the project to ensure that they are scoring according to the criteria. Daily and cumulative statistics are posted and analyzed, and Scoring Directors or Team Leaders reread selected responses scored by the readers. These procedures promote reliable and consistent scoring. Any reader who does not maintain an acceptable level of agreement is dismissed from the project.

SCORING PROCEDURES

All student responses to the Algebra I End-of-Course Examination open-response test items are scored independently by two readers. Those two scores are compared, and responses that receive scores that are non-adjacent (a “1” and a “3,” for example) are scored a third time by a Team Leader or the Scoring Director for resolution.

On the following pages, open-response items are presented as they appeared in the *2014 Mid-Year* and *Spring Algebra I End-of-Course Examinations*. The specific scoring rubric for each item and annotated responses for each score point of the rubric follows. The goal is for classroom teachers and their students to understand how responses are scored. It is hoped that this understanding will help students see what kind of performance is expected of them on the Algebra I End-of-Course Examination.

ALGEBRA I RESPONSES

ITEM A—2014 ALGEBRA I

- A. Ted is 1 year older than twice Kelly's age in years. The sum of Ted and Kelly's ages, in years, is 49.
1. Write a system of equations that can be used to relate Ted's age (T) and Kelly's age (K).
 2. What are Kelly's and Ted's ages, in years? Show your work or explain your answer.
 3. How many years from now will Kelly's age in years be 75% of Ted's age in years? Show your work or explain your answer.

BE SURE TO LABEL YOUR RESPONSES 1, 2, AND 3.

Item A Scoring Rubric—2014 Algebra I

Score	Description
4	The student earns 4 points. The response contains no incorrect work.
3	The student earns 3 – 3½ points.
2	The student earns 2 – 2½ points.
1	The student earns ½ – 1½ points, or some minimal understanding is shown.
0	The student earns 0 points. No understanding is shown.
B	Blank — No Response. A score of “B” will be reported as “NA.” (No attempt to answer the item. Score of “0” is assigned for the item.)

ITEM A SOLUTION AND SCORING—2014 ALGEBRA I

Part	Points
3	<p>1 point possible:</p> <p>½ point: Correct answer: 35 (years)</p> <p>AND</p> <p>½ point: Correct and complete procedure shown or explained Give credit for the following or equivalent: <i>If solved algebraically, work may contain 1 calculation error</i></p> <ul style="list-style-type: none"> • Let $x = \#$ of years $16 + x = .75(33 + x)$ $16 + x = 24.75 + .75x$ $.25x = 8.75$ $x = \#$ • Guess and Check: 35 years because... $16 + 35 = 51$ and $33 + 35 = 68$ (not required) $51 = (.75)(68)$ (required) • Age difference: 35 years because: $T - K = 17 = \frac{1}{4}T$ $T = 4 \cdot 17 = 68$ (required) $K = 68 - 17 = 51$ (required) or $K = 3 \cdot 17 = 51$ (required) or $K = \frac{3}{4}T = \frac{3}{4} \cdot 68 = 51$ (required) $68 - 33 = 35$ or $51 - 16 = 35$ (not required)

ITEM A SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 4

Part 1		Points
Correct equations:	$T = 2K + 1$ and $T + K = 49$ [$K = 49 - (2K + 1)$ is the correct addition of the two equations and can also be used to solve; thus the answer receives full credit.]	1
		Part 2
		Points
Correct answers:	“Kelly is 16 years old Ted is 33 years old”	1
Correct procedure:	$2K + 1 + K = 49$; $3K + 1 = 49$; $\frac{3K}{3} = \frac{48}{3}$; $K = 16$; $T = 49 - 16 = 33$	1
		Part 3
		Points
Correct answer:	“After 35 years...”	$\frac{1}{2}$
Correct procedure:	$16 + y = \frac{75(33 + y)}{100}$; $16 + y = \frac{2475 + 75y}{100}$; $1600 + 100y = 2475 + 75y$; $\frac{25y}{25} = \frac{875}{25}$; $y = 35$	$\frac{1}{2}$
Total Points		4

1) $T = 2k + 1$
 $K = 49 - (2k + 1)$
 $T + K = 49$
 2)
 $2k + 1 + k = 49$
 $3k + 1 = 49$
 $\quad -1 \quad -1$
 $3k = 48$
 $\frac{3k}{3} = \frac{48}{3}$
 $k = 16$
 $T = 49 - 16$
 $T = 33$
 Kelly is 16 years old
 Ted is 33 years old
 3) $K = 75\%T$
 $y = \text{years}$
 $16 + y = \frac{75(33 + y)}{100}$
 $16 + y = \frac{2475 + 75y}{100}$
 $1600 + 100y = 2475 + 75y$
 $\quad 25y = 875$
 $\frac{25y}{25} = \frac{875}{25}$
 $y = 35$
 After 35 years Kelly's age will be 75% of Ted's age.

ITEM A SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 2

<u>Part 1</u>		Points
One correct equation:	$T = 2K + 1$.	$\frac{1}{2}$
<u>Part 2</u>		Points
Correct answers:	$T = 33$ and $K = 16$	1
Incomplete procedure:	$16 \times 2 = 32$; $32 + 1 = 33$ Does not show $49 - K = 2K + 1$, $48 = 3K$, or $16 = K$. The above answers do not reflect the other incorrect procedures; those computations are considered abandoned.	0
<u>Part 3</u>		Points
Correct answer:	"35 years later"	$\frac{1}{2}$
Correct procedure:	$51 - 16 = 35$; $\frac{51}{68} = 0.75$	$\frac{1}{2}$
Total Points		$2\frac{1}{2}$

1. $T = 2K + 1$
 $K + T = 49$

2. $T = 33$
 $K = 16$

$$\begin{array}{r}
 T = 2K + 1 \\
 -T \\
 \hline
 2K + 1 - T = 0 \\
 \quad -1 \quad -1 \\
 \hline
 2K - T = -1
 \end{array}$$

$$\begin{array}{r}
 16 \times 2 = 32 \\
 + 1 \\
 \hline
 33
 \end{array}$$

$$\begin{array}{r}
 2K - T = -1 \\
 \frac{2K - T}{2} = \frac{-1}{2} \\
 K - T = -\frac{1}{2}
 \end{array}$$

3. 35 years later

$$\frac{16}{33} = 0.48$$

$$\begin{array}{r}
 51 \\
 -16 \\
 \hline
 35 \text{ years}
 \end{array}$$

$$\frac{51}{68} = 0.75$$

$$\begin{array}{r}
 33 \\
 -40 \\
 \hline
 17
 \end{array}$$

ITEM A SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 1

<u>Part 1</u>		Points
One correct equation:	$K + T = 49$. There are four more equivalent equations. $\frac{T}{2} - 1 = K$ is an incorrect version of $2K + 1 = T$.	$\frac{1}{2}$
<u>Part 2</u>		Points
Correct answers:	$K = 16$ and $T = 3$	1
Incomplete procedure:	$49 - 1 = 48$; $48 \div 3$; $K + 2K = 49$ is incorrect.	0
<u>Part 3</u>		Points
Incorrect answer:	"8 years - 9 years"	0
Incorrect procedure:	$33 \times .75 = 24.75$; $24.75 - 16 = 8.75$ Computes in how many years Kelly's age will be 75% of Ted's current age.	0
Total Points		$1\frac{1}{2}$

1.) $T = \text{Ted}$
 $K = \text{Kelly}$

$2K + 1 = T$ $T + K = 49$
 $\frac{T}{2} - 1 = K$ $49 - K = T$
 $K + T = 49$ $49 - T = K$

2.) $K = 16$
 $T = 33$

$\frac{49}{48} \div 3$ $K + 2K = 49$

3.) $33 \times .75 = 24.75$

$\begin{array}{r} 24.75 \\ -16 \\ \hline 8.75 \end{array}$ 8 years - 9 years

SCORE POINT: 0

<u>Part 1</u>		Points
Incorrect equation:	$(T+1) \cdot 2K = 49$	0

<u>Part 2</u>		Points
Incorrect answers:	"Kelly is 2 years old. Ted is 47 years old."	0
Incorrect procedure:	$49 \div 2 = 24.5$; $24.5 + 1 = 25.5$; 25.5×2 ; $49 - 25.5 = 23.5$; $23.5 \times 2 = 47$	0

<u>Part 3</u>		Points
Correct answer:	"35 years"	0
Incorrect procedure:	$.75 \times 47 = 35.25 = 35$ No credit for a correct answer from an incorrect procedure.	0
Total Points		0

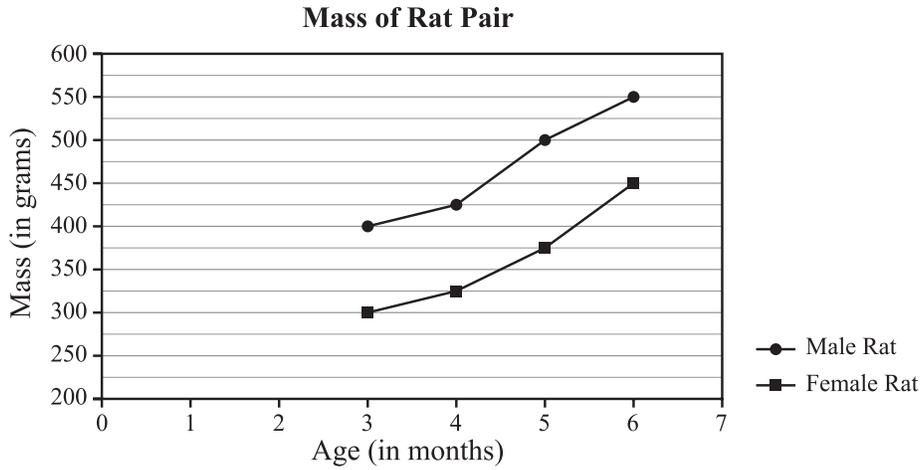
① $(T+1) \cdot 2K = 49$

② Kelly's and Ted's ages in years
 Kelly is 2 years old. Ted is 47 years old. $k = 23.5$
 $49 \div 2 = 24.5$
 $+ 1$
 Ted = 25.5 times the 2 of Kelly's.

③ Kelly's age in years will be 35 years of Ted's age.
 $\begin{array}{r} .75 \\ \times 47 \\ \hline 35.25 = 35 \text{ years} \end{array}$

ITEM B—2014 ALGEBRA I

B. Andrew collected data on a pair of rats about their mass as they aged. He graphed the data as shown below.



1. Create a matrix that contains the data in the graph with “Male” and “Female” for the columns and “Age” for the rows. Be sure to label your rows and give the matrix a title.
2. Andrew collected data on male rat behavior using tally marks. Organize the data into a single matrix. Be sure to include labels and a title.

Male Rats, 3 Months Old:

Grooming *|||*
 Nesting *|||*
 Play-fighting *||| |||*
 Feeding *||| |||*

Male Rats, 4 Months Old:

Grooming *|||*
 Nesting *||*
 Play-fighting *||| ||| |||*
 Feeding *||| |||*

Male Rats, 5 Months Old:

Grooming *||*
 Nesting *|||*
 Play-fighting *||| |||*
 Feeding *||| ||| |||*

Male Rats, 6 Months Old:

Grooming *|||*
 Nesting *||||*
 Play-fighting *||| ||| ||*
 Feeding *||| ||| ||| |*

BE SURE TO LABEL YOUR RESPONSES 1 AND 2.

ITEM B SOLUTION AND SCORING—2014 ALGEBRA I

Item B Scoring Rubric—2014 Algebra I

Score	Description
4	The student earns 4 points. The response contains no incorrect work.
3	The student earns 3 points.
2	The student earns 2 points.
1	The student earns 1 point, or some minimal understanding is shown.
0	The student earns 0 points. No understanding is shown.
B	Blank — No Response. A score of “B” will be reported as “NA.” (No attempt to answer the item. Score of “0” is assigned for the item.)

ITEM B—2014 ALGEBRA I

SOLUTION AND SCORING

4 points possible:

Part	Points																									
1	<p>2 points possible:</p> <p>2 points: Correct and complete matrix Give credit for the following or equivalent: Ex.</p> <p style="text-align: center;">Mass of Rat Pair</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Male</th> <th>Female</th> </tr> </thead> <tbody> <tr> <td>3 months</td> <td>400</td> <td>300</td> </tr> <tr> <td>4 months</td> <td>425</td> <td>325</td> </tr> <tr> <td>5 months</td> <td>500</td> <td>375</td> </tr> <tr> <td>6 months</td> <td>550</td> <td>450</td> </tr> </tbody> </table> <p style="text-align: center;">OR</p> <p>1 point: 1 or more labels (including title) are missing or incorrect but matrix is otherwise correct</p> <p style="text-align: center;">or</p> <p>1 element is incorrect but all labels (including title) are correct</p> <p><i>NOTE: The definition of Matrices in the Arkansas Frameworks is “Ordered tables or listings of numerical data,” consequently a specific format is not required.</i></p>		Male	Female	3 months	400	300	4 months	425	325	5 months	500	375	6 months	550	450										
	Male	Female																								
3 months	400	300																								
4 months	425	325																								
5 months	500	375																								
6 months	550	450																								
2	<p>2 points possible:</p> <p>2 points: Correct and complete matrix Give credit for the following or equivalent: Ex.</p> <p style="text-align: center;">Male Rat Behaviors</p> <p style="text-align: center;">(Age in months)</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> </tr> </thead> <tbody> <tr> <td>Grooming</td> <td>5</td> <td>3</td> <td>2</td> <td>5</td> </tr> <tr> <td>Nesting</td> <td>3</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>Play-fighting</td> <td>10</td> <td>13</td> <td>10</td> <td>12</td> </tr> <tr> <td>Feeding</td> <td>8</td> <td>10</td> <td>15</td> <td>16</td> </tr> </tbody> </table> <p style="text-align: center;">OR</p> <p>1 point: 1 or more labels (including title) are missing or incorrect but matrix is otherwise correct</p> <p style="text-align: center;">or</p> <p>1 element is incorrect but all labels (including title) are correct</p>		3	4	5	6	Grooming	5	3	2	5	Nesting	3	2	3	4	Play-fighting	10	13	10	12	Feeding	8	10	15	16
	3	4	5	6																						
Grooming	5	3	2	5																						
Nesting	3	2	3	4																						
Play-fighting	10	13	10	12																						
Feeding	8	10	15	16																						

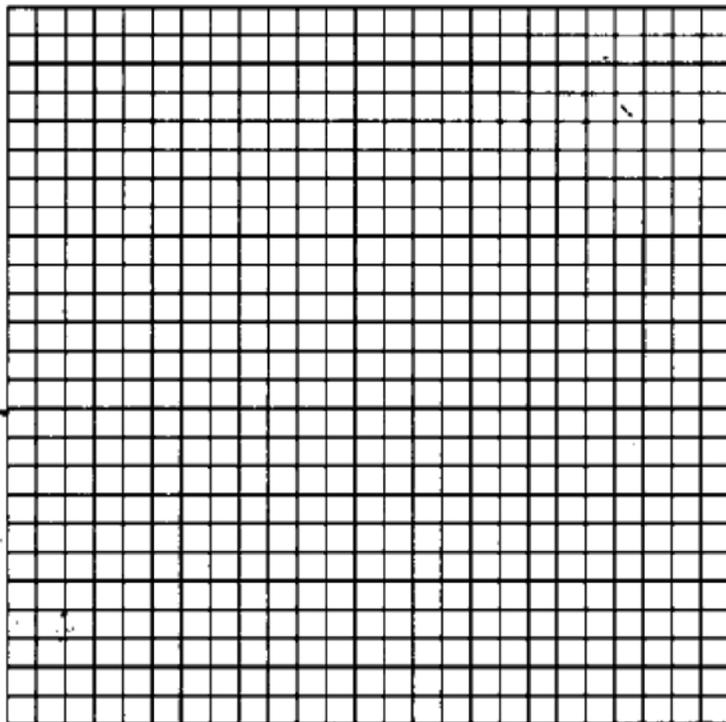
SCORE POINT: 4

<u>Part 1</u>		Points
Correct matrix:	Correct values, title, and labels.	2

<u>Part 2</u>		Points
Correct matrix:	Correct values, title, and labels.	2
Total Points		4

① Mass of Rat Pairs

Age (months)	Male	Female
3	400	300
4	425	325
5	500	375
6	550	450



②

Male rat behavior

Age (months)	G	N	P	F
3	5	3	10	8
4	3	2	13	10
5	2	3	10	15
6	5	4	12	16

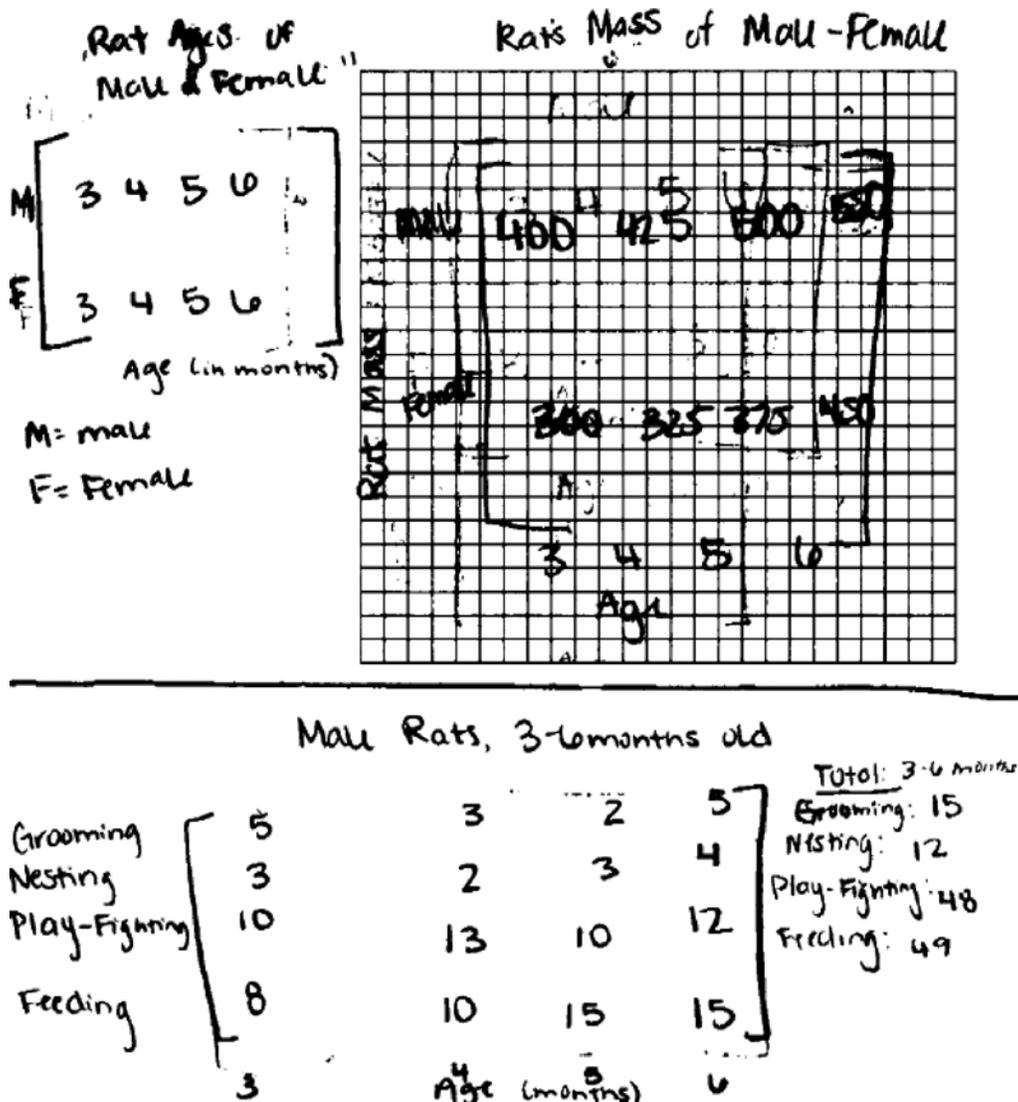
G = grooming
 N = resting
 P = play-fighting
 F = feeding

ITEM B SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 3

<u>Part 1</u>		Points
Correct matrix:	Correct values, title, and labels. Additional matrix is titled, so it is not confused with the expected matrix. It is not incorrect, so it is considered additional non-essential information that does not warrant a score reduction.	2
<u>Part 2</u>		Points
Incorrect matrix:	Correct title and labels. One incorrect value. F6: 15 SB 16.	1
Total Points		3

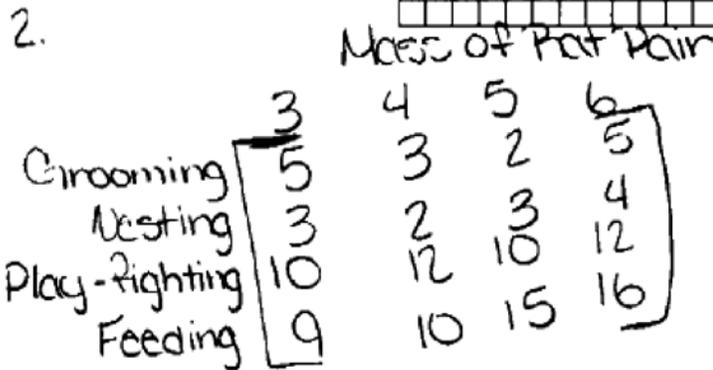
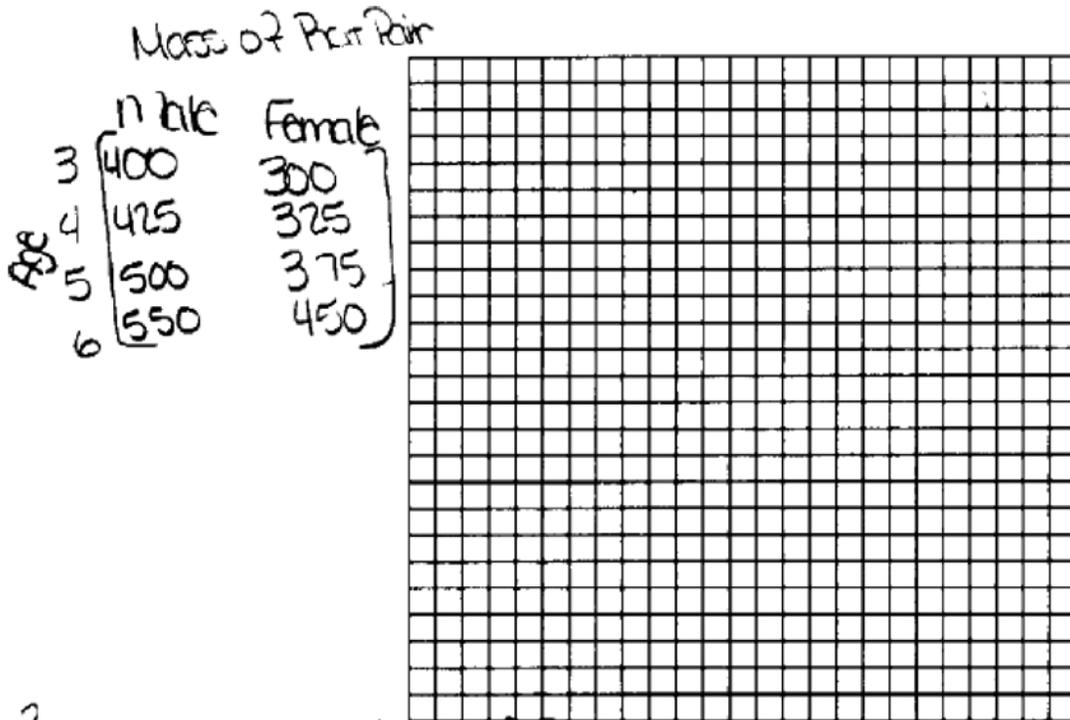
Two of the totals in Part 2 are incorrect: 48 SB 45; 49 SB 48. Although the totals are not required, if there had been no incorrect values in the matrix, these incorrect totals would warrant a score reduction from 4 to 3.



ITEM B SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 2

<u>Part 1</u>		Points
Correct matrix:	Correct values, title, and labels.	2
<u>Part 2</u>		Points
Incorrect matrix:	Correct title. Missing age label to indicate what the 3, 4, 5, and 6 represent. This error alone would make the Part 2 score 1. Two incorrect values: P4: 12 SB 13 and F3: 9 SB 8. These errors alone make the Part 2 score 0.	0
Total Points		2



ITEM B SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 1

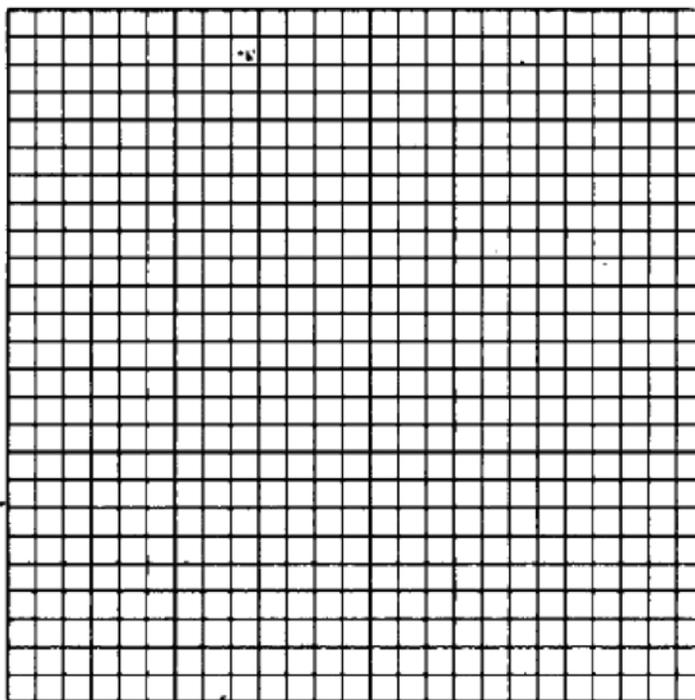
Part 1

		Points
Incorrect matrix:	Correct values. Missing title. Missing age label to indicate what the 3, 4, 5, and 6 represent.	1

Part 2

		Points
Incorrect matrix:	Single-column matrix with the totals of the behaviors.	0
Total Points		1

$$\begin{array}{c}
 \text{M} \quad \text{F} \\
 \left[\begin{array}{cc}
 3 & 400, 300 \\
 4 & 425, 329 \\
 5 & 500, 375 \\
 6 & 550, 450
 \end{array} \right]
 \end{array}$$



Male rats with 3-6 months old

$$\begin{array}{c}
 \text{Grooming} \\
 \text{Nesting} \\
 \text{Play-fights} \\
 \text{Feeding}
 \end{array}
 \left[\begin{array}{c}
 \text{M} \\
 15 \\
 12 \\
 45 \\
 49
 \end{array} \right]$$

ITEM B SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

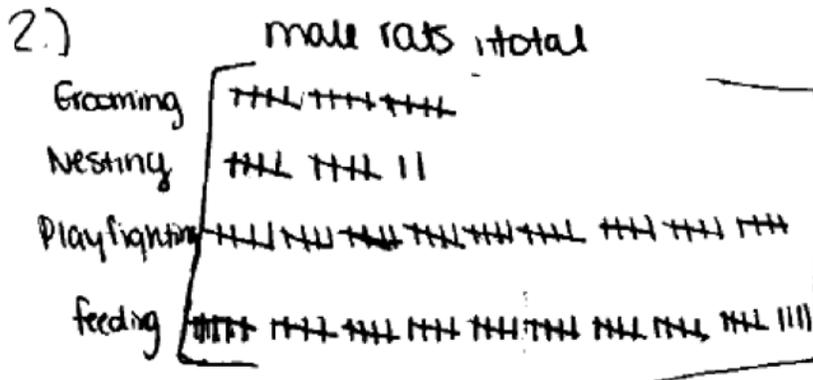
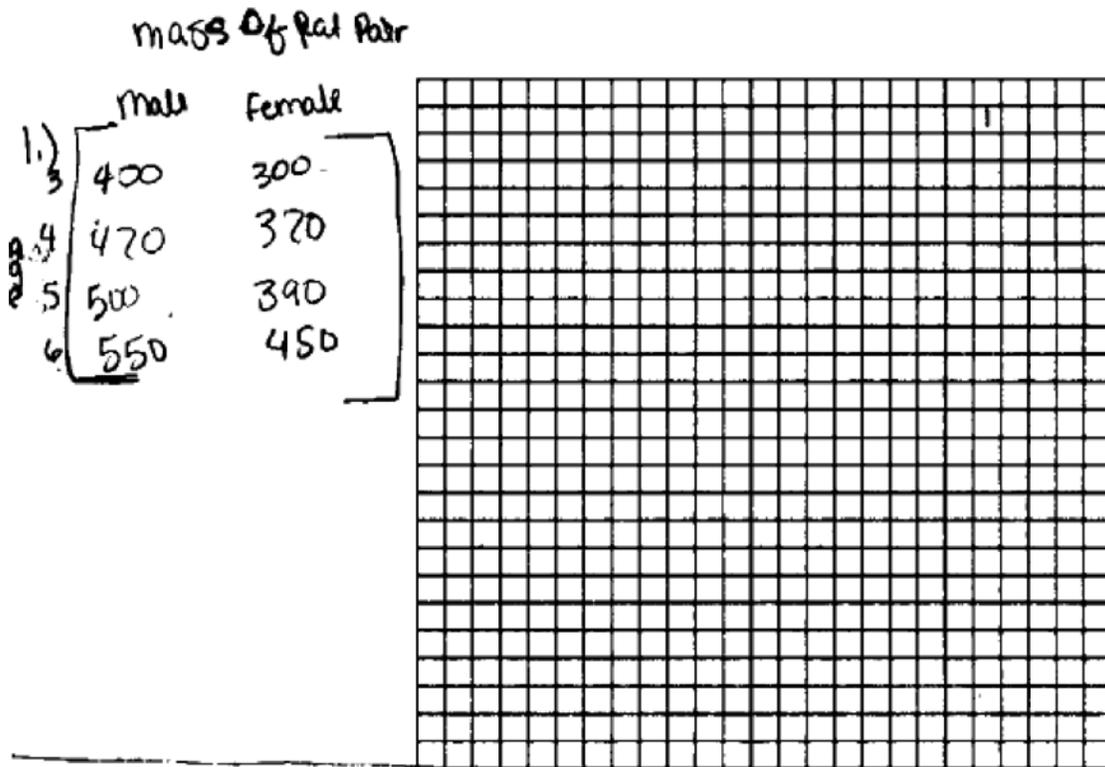
SCORE POINT: 0

Part 1

		Points
Incorrect matrix:	Correct title and labels. Three incorrect values: 4M: 420 SB 425; 4F: 320 SB 325; 5F: 390 SB 375.	0

Part 2

		Points
Incorrect matrix:	Single-column matrix. Tally-mark-totals are OK.	0
Total Points		0



ITEM C—2014 ALGEBRA I

- C. A cell phone family plan costs \$50 per month for the first person and \$10 per month for each additional person, x , up to four additional people. The equation $y = 10x + 50$ represents the cost, y , of the plan per month.
1. Make a table to find the possible costs for the plan. Show your work and/or explain your answer.
 2. What are the domain and range of the equation?

BE SURE TO LABEL YOUR RESPONSES 1 AND 2.

Item C Scoring Rubric—2014 Algebra I

Score	Description
4	The student earns 4 points. The response contains no incorrect work.
3	The student earns 3 – 3½ points.
2	The student earns 2 – 2½ points.
1	The student earns ½ – 1½ points, or some minimal understanding is shown.
0	The student earns 0 points. No understanding is shown.
B	Blank – No Response. A score of “B” will be reported as “NA.” (No attempt to answer the item. Score of “0” is assigned for the item.)

SOLUTION AND SCORING

4 points possible:

Part	Points												
1	<p>2 points possible:</p> <p>2 points: Correct table Correct procedure shown or explained One procedure computation may be missing Give credit for the following or equivalent: Ex.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Additional Users (x)</th> <th>Plan Cost (y)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">$10(0) + 50 = 50$</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">$10(1) + 50 = 60$</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">$10(2) + 50 = 70$</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">$10(3) + 50 = 80$</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">$10(4) + 50 = 90$</td> </tr> </tbody> </table> <p style="text-align: center;">OR</p> <p>1 point: • Correct table Procedure is missing or is missing more than one computation</p> <p style="margin-left: 100px;">• Incomplete table: “$x = 0$” is missing Procedure complete</p> <p style="margin-left: 100px;">• Correct procedure; table is missing or incorrect A correct graph is acceptable for procedure</p> <p style="margin-left: 100px;">• Correct procedure based on an incorrect table</p> <p style="margin-left: 100px;">• Table has 1 incorrect value due to a calculation or copy error <i>Subsequent values may be based on that 1 error</i> Correct and complete procedure shown</p> <p style="text-align: center;">OR</p> <p>½ point: • Incomplete table: “$x = 0$” is missing; Procedure is missing or incomplete</p> <p style="margin-left: 100px;">• Incomplete table: “$x = 0$” is missing One incorrect value due to a calculation or copy error</p>	Additional Users (x)	Plan Cost (y)	0	$10(0) + 50 = 50$	1	$10(1) + 50 = 60$	2	$10(2) + 50 = 70$	3	$10(3) + 50 = 80$	4	$10(4) + 50 = 90$
Additional Users (x)	Plan Cost (y)												
0	$10(0) + 50 = 50$												
1	$10(1) + 50 = 60$												
2	$10(2) + 50 = 70$												
3	$10(3) + 50 = 80$												
4	$10(4) + 50 = 90$												

ITEM C SOLUTION AND SCORING—2014 ALGEBRA I

Part	Points
2	<p data-bbox="316 289 511 321">2 points possible:</p> <p data-bbox="414 352 1312 447">1 point: Correct domain: Domain = {0, 1, 2, 3, 4} Other protocols accepted: 0, 1, 2, 3, 4; (0, 1, 2, 3, 4); [0, 1, 2, 3, 4] <i>Or correct answer based on Part 1</i></p> <p data-bbox="414 485 472 516">AND</p> <p data-bbox="414 548 1300 667">1 point: Correct range: Range = {50, 60, 70, 80, 90} Other protocols accepted: 50, 60, 70, 80, 90; (50, 60, 70, 80, 90); [50, 60, 70, 80, 90] <i>Or correct answer based on Part 1</i></p>

SCORE POINT: 4

Part 1		Points
Correct Table:	Contains all expected x and y values.	1
Correct Procedure:	Shown in table.	1
Part 2a		Points
Correct Domain:	{0, 1, 2, 3, 4}	1
Part 2b		Points
Correct Range:	{50, 60, 70, 80, 90}	1
Total Points		4

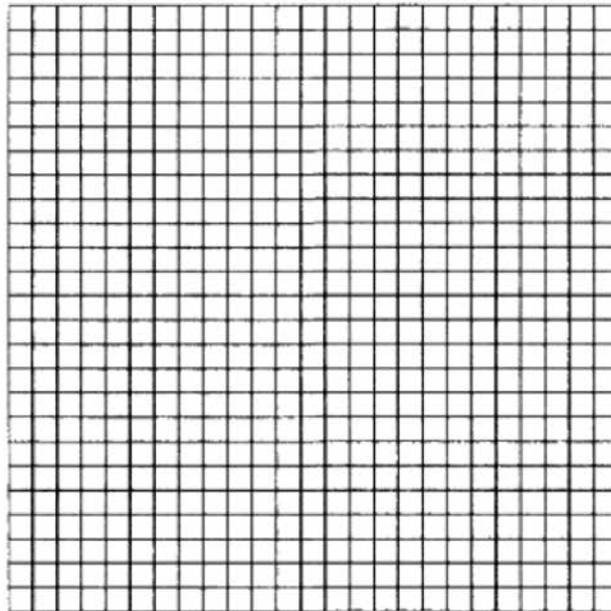
① Make a Table.

x	$y = 10x + 50$	y
0	$10(0) + 50$	50
1	$10(1) + 50$	60
2	$10(2) + 50$	70
3	$10(3) + 50$	80
4	$10(4) + 50$	90

② What are the domain
+ range of the
equation?

Domain (x)
 $\{0, 1, 2, 3, 4\}$

Range (y)
 $\{50, 60, 70, 80, 90\}$



ITEM C SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

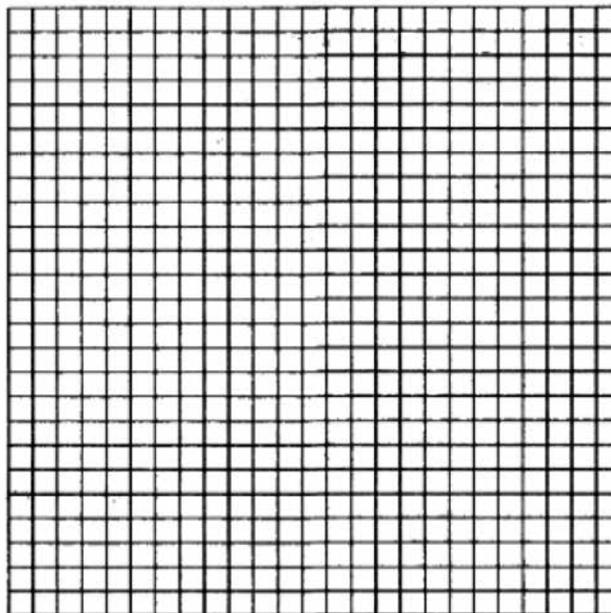
SCORE POINT: 3

Part 1		Points
Correct Table:	Contains all expected x and y values.	1
Missing Procedure:		
Part 2a		Points
Correct Domain:	0, 1, 2, 3, 4	1
Part 2b		Points
Correct Range:	50, 60, 70, 80, 90	1
Total Points		3

1.

x	y
0	50
1	60
2	70
3	80
4	90

2. Domain:
0, 1, 2, 3, 4
Range
50, 60, 70, 80, 90



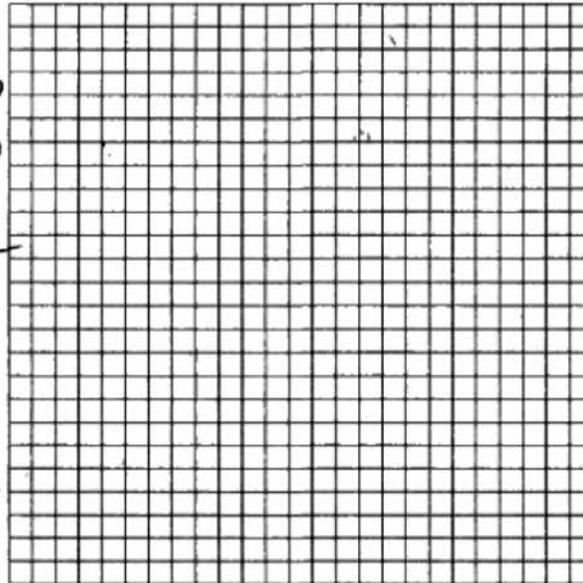
ITEM C SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 2

<u>Part 1</u>		Points
Incomplete Table:	Missing $x = 0$ and $y = 50$.	1
Correct Procedure:	Shown as part of table.	
<u>Part 2a</u>		Points
Correct Domain for incomplete Part 1:	1, 2, 3, 4	1
<u>Part 2b</u>		Points
Incorrect Range for incomplete Part 1:	10, 50	0
Total Points		2

people	total cost
1	60
2	70
3	80
4	90

1. domain is 1, 2, 3, 4
 because they are all
 x 's and are different.
 The range is 10, 50
 because that's the y .



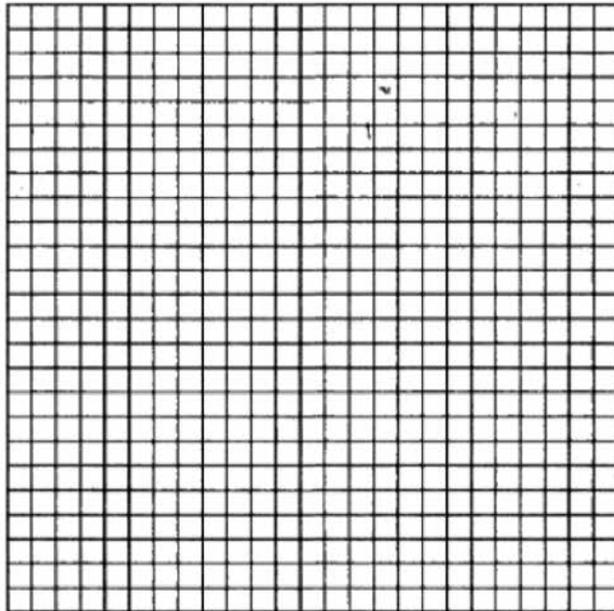
ITEM C SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 1

<u>Part 1</u>		Points
Missing Table:		1
Correct Procedure:	All expected calculations shown.	
<u>Part 2a</u>		Points
Incorrect Domain:	"Domain = \$10 for every month for each additional person"	0
<u>Part 2b</u>		Points
Incorrect Range:	"Range = $x + 50$ for 1 st person per month, and then however many people he/she adds."	0
Total Points		1

①

1. $10(1) + 50 = 60$
2. $10(2) + 50 = 70$
3. $10(3) + 50 = 80$
4. $10(4) + 50 = 90$
5. $10(5) + 50 = 100$



②

Domain = \$10 for every month for each additional person

Range = $x + 50$ for 1st person per month, and then however many people he/she adds.

ITEM C SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 0

Part 1

		Points
Incomplete Table with error:	Missing $x = 0$ and $y = 50$. Error: $x = 1$ and $y = 50$ SB $x = 1$ and $y = 60$. Error carries through all x values.	0
Missing Procedure:	Because there is no procedure, there is no evidence of a calculation error \Rightarrow no credit for table entries.	

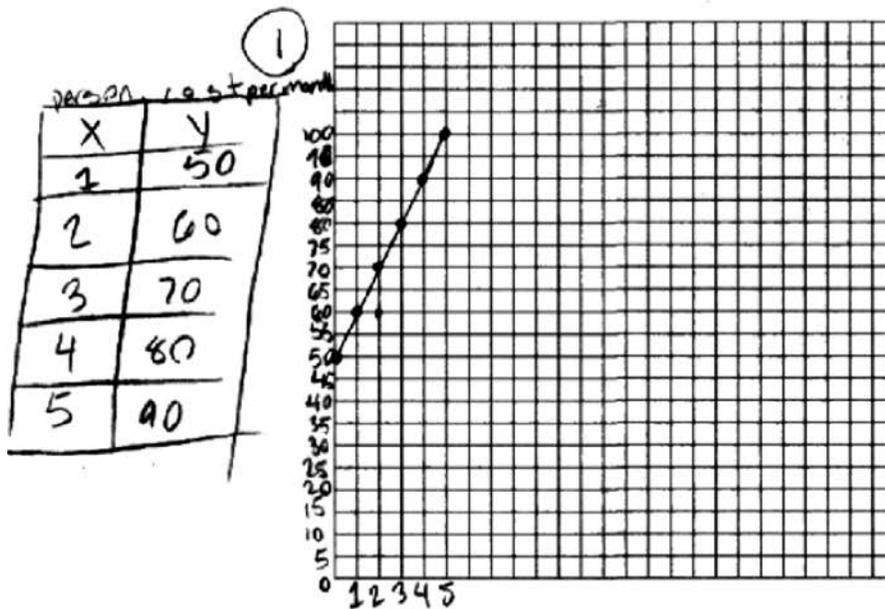
Part 2a

		Points
Incorrect Domain:	"The domain, or x value, is the number of additional people you can add to the plan."	0

Part 2b

		Points
Incorrect Range:	"The range, or y value, is the cost of the plan depending on how many people use the plan."	0

Total Points 0



② the domain, or x value, is the number of additional people you can add to the plan. The range, or y value, is the cost of the plan depending on how many people use the plan.

ITEM D—2014 ALGEBRA I

- D. A certain square pyramid has a ratio of base length to height of 2:3. The volume and surface area of this pyramid can be found using the formulas

$$\text{Volume} = \frac{1}{3}(x)^2\left(\frac{3}{2}x\right) \text{ and}$$
$$\text{Surface area} = (x)^2 + \frac{1}{2}(4x)\left(\frac{x}{2}\sqrt{10}\right)$$

where x = the length of a side of the base.

1. Simplify the volume formula. Find the volume of this type of pyramid if the length of the side of the base is 10 feet. Show your work or explain your answer.
2. What is the surface area of this type of pyramid if the length of a side of the base is 16 feet? Show your work and round your answer to the nearest square foot.

BE SURE TO LABEL YOUR RESPONSES 1 AND 2.

Item D Scoring Rubric—2014 Algebra I

Score	Description
4	The student earns 4 points. The response contains no incorrect work.
3	The student earns 3 – 3½ points.
2	The student earns 2 – 2½ points.
1	The student earns ½ – 1½ points, or some minimal understanding is shown.
0	The student earns 0 points. No understanding is shown.
B	Blank – No Response. A score of “B” will be reported as “NA.” (No attempt to answer the item. Score of “0” is assigned for the item.)

SOLUTION AND SCORING

Do not deduct for early rounding or truncating in internal work that results in the correct answer. Students may write these values for brevity, using the exact calculator value to find their answer.

**Missing units are acceptable.
Incorrect units are a 4/3 issue.**

4 points possible:

Part	Points
1	<p>2 points possible:</p> <p style="margin-left: 40px;">½ point: Correct formula: Volume = $\frac{1}{2}x^3$ or = $\frac{x^3}{2}$</p> <p style="text-align: center;">AND</p> <p style="margin-left: 40px;">½ point: Correct and complete procedure shown or explained Work may contain a calculation or copy error Give credit for the following or equivalent: Ex.</p> $\begin{aligned} \text{Volume} &= \frac{1}{3}(x)^2\left(\frac{3}{2}x\right) \\ &= \frac{1}{\cancel{3}}(x)^2\left(\frac{\cancel{3}}{2}x\right) \\ &= \frac{1}{2}x^3 \text{ or } = \frac{x^3}{2} \end{aligned}$ <p style="text-align: center;">AND</p> <p style="margin-left: 40px;">½ point: Correct volume: 500 ft³ <i>Or correct answer based on incorrectly simplified formula</i> Note: If label exponent is attached to the numerical value, deduct ½ point from Part 1 point total.</p> <p style="text-align: center;">AND</p> <p style="margin-left: 40px;">½ point: Correct and complete procedure shown or explained Work may contain a calculation, copy, or rounding error, or early rounding(s) Give credit for the following or equivalent: Ex. Volume = $\frac{1}{2}(10)^3 = \frac{1}{2}(1000) = 500 \text{ ft}^3$</p>

ITEM D—2014 ALGEBRA I

Part	Points
2	<p>2 points possible:</p> <p>1 point: Correct area: 1066 (ft²) rounded to the nearest square foot</p> <p style="text-align: center;">OR</p> <p>½ point: Answer correctly rounded or truncated to a place other than the nearest square foot or label exponent is attached to the numerical value</p> <p style="text-align: center;">AND</p> <p>1 point: Correct and complete procedure shown or explained Work may contain a calculation, copy, or rounding error, early rounding(s), or truncation Give credit for the following or equivalent: Ex.</p> $\begin{aligned} \text{Surface area} &= (16)^2 + \frac{1}{2}(4 \times 16)\left(\frac{16}{2}\sqrt{10}\right) \\ &= 256 + \frac{1}{2}(64)(8\sqrt{10}) \\ &= 256 + 32(8\sqrt{10}) \\ &= 256 + 256\sqrt{10} \quad \text{acceptable answer} \\ &= 256(1 + \sqrt{10}) \quad \text{acceptable answer} \\ &= 1065.54308\dots \\ &\approx 1066 \text{ ft}^2 \quad \text{acceptable answer} \end{aligned}$

ITEM D SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 4

Part 1a		Points
Correct Formula:	$\frac{1}{2}x^3$	1
Correct Procedure:	$\frac{1}{3}x^2\left(\frac{3}{2}x\right) = \frac{1}{\cancel{3}} \cdot \frac{\cancel{3}}{2} \cdot x^2 \cdot x = \frac{1}{2}x^3$	
Part 1b		Points
Correct Volume:	500 feet ³	1
Correct Procedure:	$\frac{1}{2} \cdot (10)^3 = \frac{1}{2} \cdot 1000 = 500$	
Part 2		Points
Correct Area:	1066 feet ²	2
Correct Procedure:	$x^2 + (2x)\left(\frac{x}{2}\sqrt{10}\right) = x^2 + x^2\sqrt{10} = x^2(1 + \sqrt{10}); (16)^2(1 + \sqrt{10});$ $256(1 + \sqrt{10}) = 1066$	
Total Points		4

$$1). \frac{1}{3}x^2\left(\frac{3}{2}x\right) = \frac{1}{\cancel{3}} \cdot \frac{\cancel{3}}{2} \cdot x^2 \cdot x = \frac{1}{2}x^3$$

$$\frac{1}{2}(10)^3 = \frac{1}{2} \cdot 1000 = 500 \text{ feet}^3$$

$$2). x^2 + \frac{1}{2}(4x\left(\frac{x}{2}\sqrt{10}\right)) = x^2 + (2x)\left(\frac{x}{2}\sqrt{10}\right) = x^2 + x^2\sqrt{10} =$$

$$x^2(1 + \sqrt{10})$$

$$(16)^2(1 + \sqrt{10})$$

$$256(1 + \sqrt{10}) = 1066 \text{ feet}^2$$

ITEM D SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 3

Part 1a		Points
Missing Formula:		0
Missing Procedure:		
Part 1b		Points
Correct Volume:	500	1
Correct Procedure:	$\frac{1}{3}(10)^2\left(\frac{3}{2}10\right) = 500$	
Part 2		Points
Correct Area:	1066 sq ft	2
Correct Procedure:	$(16)^2 + \frac{1}{2}(4 \cdot 16)\left(\frac{16}{2}\sqrt{10}\right) = 1066$	
Total Points		3

$$\textcircled{1} V = \frac{1}{3} (v)^2 \left(\frac{3}{2}x\right)$$

$$V = \frac{1}{3} (10)^2 \left(\frac{3}{2}10\right) = \boxed{500 = V}$$

$$\textcircled{2} (x^2) + \frac{1}{2} (4x) \left(\frac{x}{2} \sqrt{10}\right)$$

$$(16^2) + \frac{1}{2} (4 \cdot 16) \left(\frac{16}{2} \sqrt{10}\right) = \boxed{1066 \text{ sq ft}}$$

ITEM D SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 2

Part 1a		Points
Correct Formula:	$\frac{1}{2}x^3$	1
Correct Procedure:	$x^2 \cdot x = x^3$; $\frac{1}{3} \cdot \frac{3}{2} = \frac{1}{2}x^3$	
Part 1b		Points
Correct Volume:	“five hundred ft. ³ ” and 500 feet. ³	1
Correct Procedure:	$\frac{1}{2}(10)^3$; $\frac{1}{2}(1000) = 500$	
Part 2		Points
Incorrect Area:	7286 square feet	0
Incorrect Procedure:	$(16)^2 + \frac{1}{2}(4(16))\left(\frac{16}{2}\sqrt{10}\right)$; $256 + \frac{1}{2}(64)(8\sqrt{10})$; $256 + 32 = 288(8\sqrt{10}) = 7286$ [process error: added 256 + 32 before multiplying]	
Total Points		2

1. $\frac{1}{3}(x)^2\left(\frac{3}{2}x\right)$
 $\frac{1}{3}x^2\left(\frac{3}{2}x\right)$ $\frac{1}{3} \cdot \frac{3}{2} = \frac{1}{2}x^3$

$\frac{1}{2}(10)^3$ $x^2 \cdot x = x^3$

$\frac{1}{2}(1000) = 500 \text{ feet.}^3$
Volume of the pyramid is five hundred ft.³

2. $(16)^2 + \frac{1}{2}(4 \cdot 16)\left(\frac{16}{2}\sqrt{10}\right)$
 \downarrow
 $256 + \frac{1}{2}(64)(8\sqrt{10})$
 $256 + 32 = 288(8\sqrt{10}) = 7286 \text{ square feet.}$
The surface area is 7286 ft.².

ITEM D SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 1

Part 1a		Points
Missing Formula:		0
Missing Procedure:		
Part 1b		Points
Incorrect Volume:	499.5	½
Correct Procedure with calculation error:	$\frac{1}{3}(10)^2\left(\frac{3}{2}(10)\right)$; $33.\bar{3}\times 15 = 499.5$ [calculation error: should be = 500]	
Part 2		Points
Incorrect Area:	7286 ft ²	0
Incorrect Procedure:	$(16)^2 + \frac{1}{2}(4(16))\left(\frac{16}{2}\sqrt{10}\right)$; ... ; $256 + 32\left(\frac{16}{2}\sqrt{10}\right)$; $288(8\sqrt{10})$; [process error: added 256+32 before multiplying]; $288(25.3)$; 7286	
Total Points		½

$$\textcircled{1} \quad \frac{1}{3}(x^2)\left(\frac{3}{2}x\right)$$

$$\frac{1}{3}(10)^2\left(\frac{3}{2}(10)\right)$$

$$33.\bar{3}(15) = \textcircled{499.5}$$

$$\textcircled{2} \quad (x^2 + \frac{1}{2}(4x))\left(\frac{x}{2}\sqrt{10}\right)$$

$$(16)^2 + \frac{1}{2}(4(16))\left(\frac{16}{2}\sqrt{10}\right)$$

$$256 + \frac{1}{2}(4(16))\left(\frac{16}{2}\sqrt{10}\right)$$

$$256 + 32\left(\frac{16}{2}\sqrt{10}\right)$$

$$\textcircled{288(8\sqrt{10})}$$

$$\textcircled{288(25.3)}$$

$$\textcircled{7286\text{ft}^2}$$

ITEM D SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 0

Part 1a		Points
Missing Formula:		0
Missing Procedure:		
Part 1b		Points
Incorrect Volume:	48.33 Sq ft	0
Incorrect Procedure:	$\frac{1}{3}(10)^2\left(\frac{3}{2}10\right)$; $33.\overline{33}\left(\frac{3}{2}10\right)$; $33.\overline{33}+15 = 48.33$ [process error: added instead of multiplied]	
Part 2		Points
Incorrect Area:	313.29 Sq ft.	0
Incorrect Procedure:	$(16)^2 + \frac{1}{2}(4(16))\left(\frac{16}{2}\sqrt{10}\right)$; $256 + 32 + 25.291 = 313.29$ [process error: added instead of multiplied]	
Total Points		0

$$V = \frac{1}{3}(x)^2\left(\frac{3}{2}x\right)$$

$$S = (x)^2 + \frac{1}{2}(4x)\left(\frac{x}{2}\sqrt{10}\right)$$

1.) $\frac{1}{3}(10)^2\left(\frac{3}{2}10\right)$
 $33.\overline{33}\left(\frac{3}{2}10\right)$
 $33.\overline{33} + 15 = 48.33 \text{ Sq ft}$

2.) $(16)^2 + \frac{1}{2}(4(16))\left(\frac{16}{2}\sqrt{10}\right)$
 $256 + 32 + 25.291 = 313.29 \text{ Sq ft}$

ITEM E—2014 ALGEBRA I

- E. A small company that makes stuffed bears uses the equation $B = 57p + p^2$ to show the relation between the total number of bears sold, B , and the selling price in dollars, p , of a stuffed bear.
1. The company has a goal to sell 180 stuffed bears. Rewrite the equation using 180 stuffed bears.
 2. Solve the equation from Part 1 to find the price(s) the company could charge to reach their goal. Show your work and/or explain your answer.
 3. Explain why the prices you obtained in Part 2 may or may not be reasonable.

BE SURE TO LABEL YOUR RESPONSES 1, 2, AND 3.

Item E Scoring Rubric—2014 Algebra I

Score	Description
4	The student earns 4 points. The response contains no incorrect work.
3	The student earns 3 – 3½ points.
2	The student earns 2 – 2½ points.
1	The student earns ½ – 1½ points, or some minimal understanding is shown.
0	The student earns 0 points. No understanding is shown.
B	Blank – No Response. A score of “B” will be reported as “NA.” (No attempt to answer the item. Score of “0” is assigned for the item.)

ITEM E SOLUTION AND SCORING—2014 ALGEBRA I

SOLUTION AND SCORING

4 points possible:

Part	Points
1	<p>1 point possible:</p> <p>1 point: Correct equation: $180 = 57p + p^2$ or equivalent</p>
2	<p>2 points possible:</p> <p>1 point: Two correct prices: $p = -60$ or $p = 3$ (\$) or One correct price of $p = 3$ with a correct and complete procedure <i>Or correct answer(s) based on an incorrect quadratic equation in Part 1</i></p> <p style="text-align: center;">OR</p> <p>½ point: One correct price <i>Or correct price based on incorrect quadratic equation in Part 1</i></p> <p style="text-align: center;">AND</p> <p>1 point: Correct and complete procedure shown or explained <i>Work may contain 1 calculation or copy error</i> Give credit for the following or equivalent: Ex. Using factoring: $180 = 57p + p^2$ $p^2 + 57p - 180 = 0$ $(p + 60)(p - 3) = 0$ $p = -60$ or $p = 3$</p> <p>Ex. Using quadratic formula: $p^2 + 57p - 180 = 0$</p> $p = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $= \frac{-57 \pm \sqrt{(57)^2 - 4(1)(-180)}}{2(1)}$ $= \frac{-57 \pm \sqrt{3249 + 720}}{2}$ $= \frac{-57 \pm \sqrt{3969}}{2}$ $= \frac{-57 \pm 63}{2}$ $= \frac{-120}{2}, \frac{6}{2}$ $p = -60 \text{ or } p = 3$ <p style="text-align: center;">OR</p> <p>½ point: Correct procedure shown or explained for one correct price <i>Work may contain 1 calculation or copy error</i></p>

ITEM E SOLUTION AND SCORING—2014 ALGEBRA I

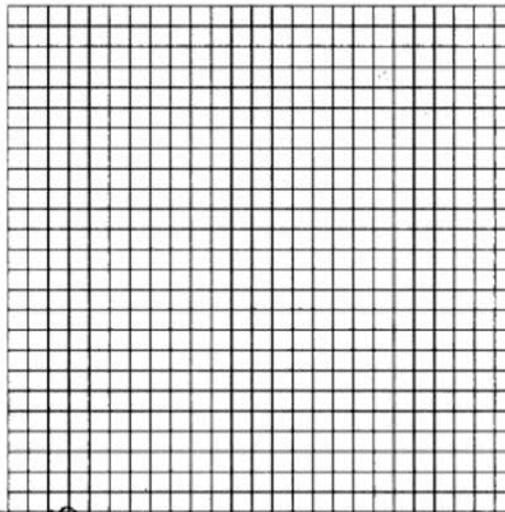
Part	Points
3	<p>1 point possible:</p> <p>1 point: Correct explanation, based on Part 2, for two prices or for one price of $p = 3$ with a correct and complete procedure in Part 2 Give credit for the following or equivalent: Ex. “A price of \$3 for a stuffed bear is reasonable, but a negative value would be losing money (you give somebody \$60 to take a bear) so that’s not reasonable.”</p> <p>OR</p> <p>½ point: Correct explanation, based on Part 2 calculations, for one price</p>

ITEM E SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 4

<u>Part 1</u>		Points
Correct Equation:	$180 = 57p + p^2$	1
<u>Part 2</u>		Points
Two Correct Prices:	3; -60	2
Correct Procedure:	$\frac{-57 \pm \sqrt{57^2 - 4(1)(-180)}}{2(1)}; \frac{-57 + \sqrt{57^2 - 4(1)(-180)}}{2} = 3;$ $\frac{-57 - \sqrt{57^2 - 4(1)(-180)}}{2} = -60$	
<u>Part 3</u>		Points
Correct Explanations:	"Price 1 (\$3) is very reasonable. Price 2 (\$-60), considering that you cannot have a negative amount of money, is not reasonable."	1
Total Points		4

①
 Original:
 $B = 57p + p^2$
 $B = \text{Bears sold}$
 $p = \text{Price of Bear}$
 $180 = 57p + p^2$



② $180 = 57p + p^2$
 $180 - 180 = 57p + p^2 - 180$
 $0 = p^2 + 57p - 180$
 $a \times 57 \times c$
 $-57 \pm \sqrt{57^2 - 4(1)(-180)}$
 $2(1)$
 $\frac{-57 \pm \sqrt{57^2 - 4(1)(-180)}}{2}$
 Price 1: $\boxed{3}$
 $\frac{-57 - \sqrt{57^2 - 4(1)(-180)}}{2}$
 Price 2: $\boxed{-60}$

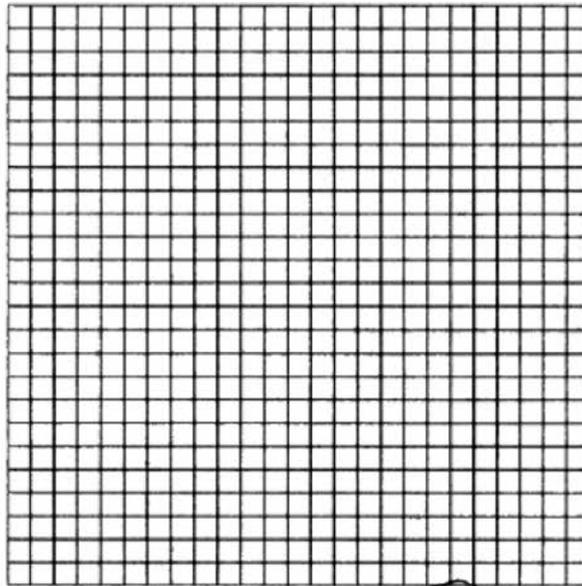
③ Price 1: \$3
 Price 2: \$-60
 Price 1 (\$3) is very reasonable.
 Price 2 (\$-60), considering that you cannot have a negative amount of money, is not reasonable.

ITEM E SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 3

<u>Part 1</u>		Points
Correct Equation:	$180 = 57p + p^2$	1
<u>Part 2</u>		Points
Two Correct Prices:	\$3; \$-60	1½
Correct Procedure Guess and Check for one price:	$180 = 57(3) + 3^2$; $171 + 9 = 180$	
<u>Part 3</u>		Points
Correct Explanations:	“\$3 is reasonable but \$-60 isn’t because you can’t charge anyone negative money like \$-60”	1
Total Points		3½

1) $180 = 57p + p^2$



2) $180 = 57p + p^2$

They could sell them for $(\$3)$ or $(\$-60)$
 $180 = 57(3) + 3^2$
 $180 = 57p + p^2 - 180 = 0$ $171 + 9 = 180$

3) \$3 is reasonable but \$-60 isn't because
 you can't charge anyone negative money like
 \$-60

ITEM E SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 2

Part 1		Points
Correct Equation:	$180 = 57p + p^2$	1
Part 2		Points
One Correct Price:	$p = 3$ or $p = \$3.00$	1
Correct Procedure Guess and Check for one price:	$57 \cdot 3 + (3)^2 = 180$; List of other trials.	
Part 3		Points
Incorrect Explanation:	“Some of the prices were unreasonable ... \$15 was too much I decreased the price ... \$2.00 was too little so I increased to \$3.00.” Describes their process for Part 2; does not explain why the prices are or are not reasonable.	0
Total Points		2

①

$$180 = 57p + p^2$$

~~180~~ too the
place of B
which stands
for number of
bears sold.

$$57 \cdot 5 + (5)^2 = 1080$$

$$57 \cdot 10 + (10)^2 = 670$$

$$57 \cdot 5 + (5)^2 = 310$$

$$57 \cdot 4.50 + (4.5)^2 = 276.75$$

$$57 \cdot 2 + (2)^2 = 118$$

$$57 \cdot 3 + (3)^2 = 180$$

② Each
bear would
cost \$3.00. $118 + (3)$
 $p = 3$ or $p = \$3.00$

P	X or V
15.00	X 1080
10.00	X 670
5.00	X 310
4.50	X 276.75

2.00	X 118
3.00	180

③ Some of the prices
where unreasonable to
begin with. After testing
and seeing that \$15
was too much I decrea
sed the price. When I
got to a more reasonable
price \$2.00 was too little
so I increased to \$3.00.

ITEM E SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

SCORE POINT: 1

Part 1		Points
Correct Equation:	$180 = 57p + p^2$	1

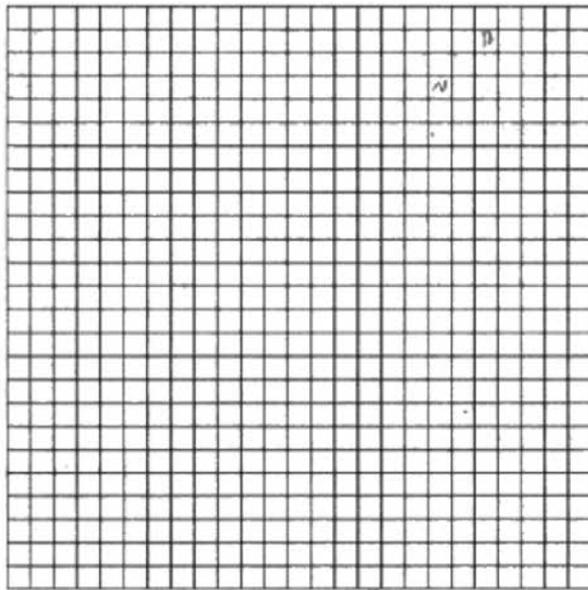
Part 2		Points
One Correct Price:	$3 = p$ No credit for a correct answer due to an incorrect procedure.	0
Incorrect Procedure:	$\frac{180}{57} = \frac{57}{57}p + p^2$; $3 = p + \sqrt{p^2}$; $3 = p$	

Part 3		Points
Correct Explanation for incorrect Part 2:	“The price ... may or may not be reasonable ... if the stuffed bear is too small, then the price should be lower. If the bear is too large, then the company is gyping no one but itself.”	½
Total Points		1½

①
 $180 = 57p + p^2$

② $\frac{180}{57} = \frac{57}{57}p + p^2$
 $3 = p + p^2$
 $3 = p$

The company should sell the stuffed bears for \$3.



③ The price I obtained from part two may or may not be reasonable. This is because, if the stuffed bear is too small, then the price should be lower. If the bear is too large, then the company is gyping no one but itself.

ITEM E SAMPLE RESPONSES AND ANNOTATIONS—2014 ALGEBRA I

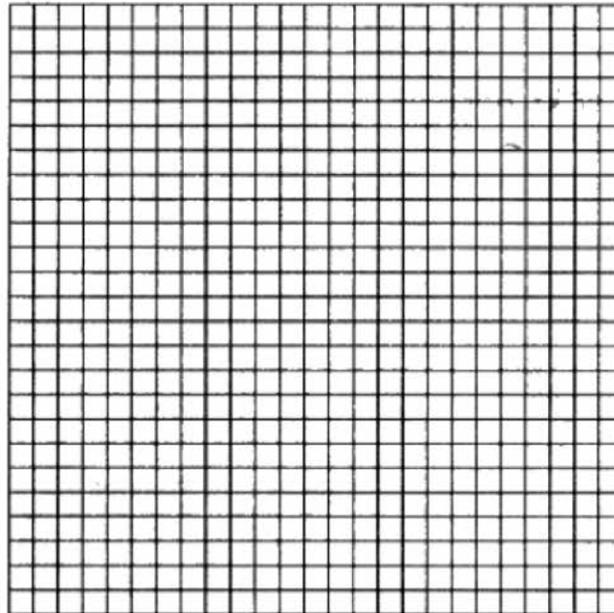
SCORE POINT: 0

<u>Part 1</u>		Points
Incorrect Equation:	$B = 180p + p^2$	0

<u>Part 2</u>		Points
Incorrect Price:	3363	0
Incorrect Procedure:	$57 + 57 + 57^2 = 3363$	

<u>Part 3</u>		Points
Incomplete Explanation:	"The price ... may or may not be reasonable because it depends on how much you are willing to pay for the teddy bear."	0
Total Points		0

1. $B = 180p + p^2$



2. $57 + 57 + 57^2$
 $= 3363$

3. The Price I obtained in part 2 may or may not be reasonable because it depends on how much you are willing to pay for the teddy bear.

ACTAAP

Arkansas Comprehensive Testing, Assessment, and Accountability Program

DEVELOPED FOR THE ARKANSAS DEPARTMENT OF EDUCATION, LITTLE ROCK, AR 72201

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