2007

Green River

Regional Educational Cooperative

Grade 5

Mathematics

Measured Progress

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NOTE: Each item is aligned to a standard, but does not necessarily measure the entire standard.

Item 1 Grandfather's Garden

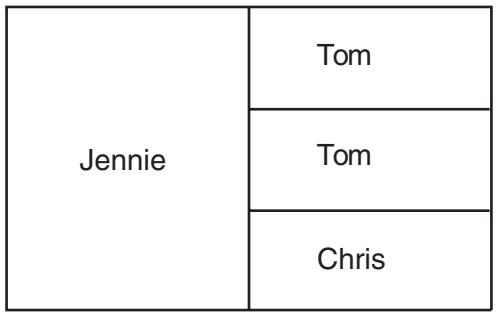
Standard: MA-05-1.1.01: Number Sense – Students will apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, expanded form, symbols) to represent whole numbers (0 to 99,999,999); apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, symbols) to describe commonly-used fractions, mixed numbers, and decimals through thousandths; apply these numbers to represent real-world problems; and explain how the base-10 number system relates to place value.

Bloom's Taxonomy: a. Knowledge
b. Knowledge
c. Application

Depth of Knowledge: Level 2

1. Jennie, Tom, and Chris weeded Grandfather's garden. The picture below shows the parts of the garden each of them weeded.

Grandfather's Garden



a. Write a fraction that tells how much of the whole garden Jennie weeded.

b. Write a fraction that tells how much of the whole garden Chris weeded. Use pictures or words to show how you found your answer.

c. Grandfather gave the children $24 for weeding the garden. The children decided to share the money based on how much weeding each of them did. How much money should each of them get? Explain or show how you found your answer.

BE SURE TO LABEL YOUR RESPONSES a, b, AND c.

Grandfather's Garden

Scoring Guide

Score	Description
4	The student response demonstrates an exemplary understanding of the Number Properties and Operations concepts involved in applying multiple representations to describe commonly used fractions and solve real-world problems.
3	The student response demonstrates a good understanding of the Number Properties and Operations concepts involved in applying multiple representations to describe commonly used fractions and solve real-world problems. Although there is significant evidence that the student was able to recognize and apply the concepts involved, some aspect of the response is missing or flawed. As a result the response merits 3 points.
2	The student response demonstrates a fair understanding of the Number Properties and Operations concepts involved in applying multiple representations to describe commonly used fractions and solve real-world problems. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 2 points.
1	The student response demonstrates a minimal understanding of the Number Properties and Operations concepts involved in applying multiple representations to describe commonly used fractions and solve real-world problems.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Sample Response:

Part a: $\frac{1}{2}$

Part b: He weeded $\frac{1}{6}$ of the garden. I divided Jennie's part into 3 equal sections. So Chris's part is one out of 6 equal parts.

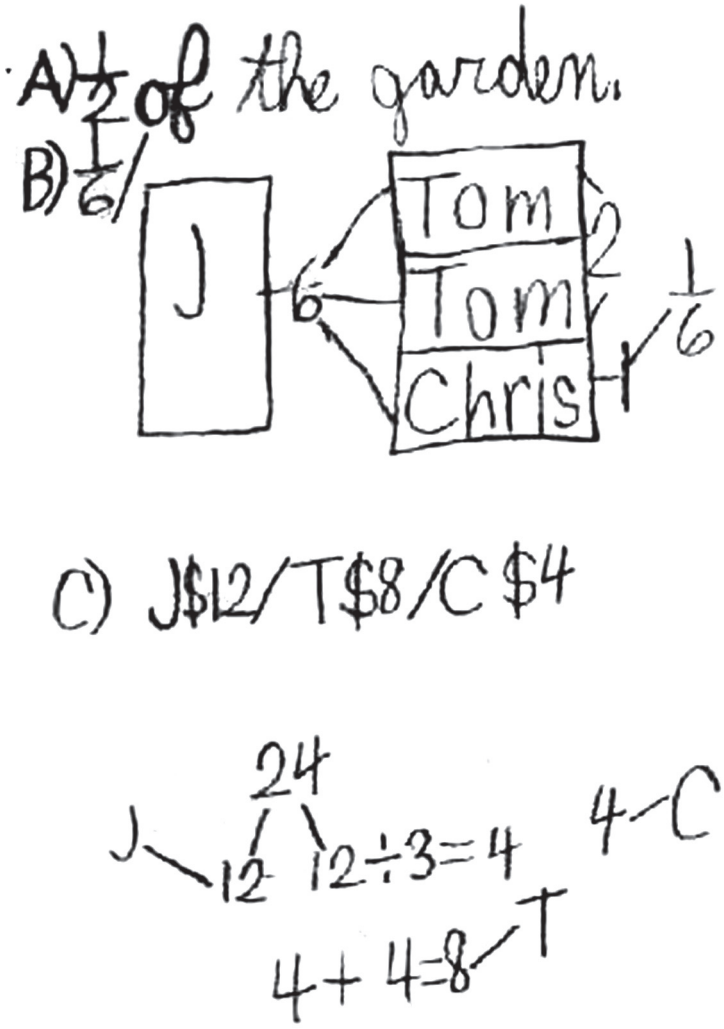
Part c: Jennie: $\frac{1}{2}$ of \$24 is \$12.

Chris: $\frac{1}{6}$ of \$24 is \$4.

Tom gets the rest: 24 – 12 – 4 = \$8

Sample Student Responses

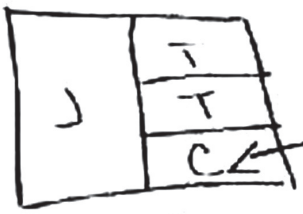
Grandfather's Garden



Score Point: 4

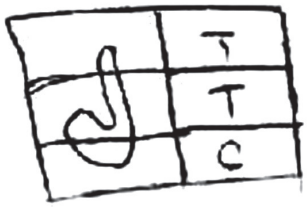
a. $\frac{3}{6}$ or $\frac{1}{2}$

b. $\frac{1}{6}$



the graph can be divided by sixths so he did one sixth.

or



C. Jeanie-$12 Tom-$8

Chris-$4

$6\overline{)24}$ 4$

| whole garden

each sixth of the garden is $4.

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

Tom = $\frac{1}{3}$ or $\frac{2}{6}$

Chris = $\frac{1}{6}$

Score Point: 4

a $\frac{1}{2}$ of the garden

b $\frac{1}{6}$ of the garden

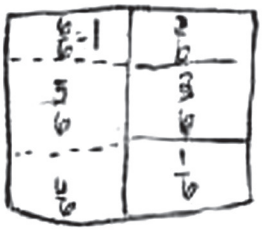
c

Jennie = $12
tom = $8
Chris = $4

Score Point: 3

a. $\frac{1}{2}$ of the garden b. $\frac{1}{6}$ of the garden

b.



c. Jennie - \$12 Tom - \$7 Chris - \$5

Since Jennie did half the lawn, she should get half the money. Since Tom did less than half, he should get a little less than half the money. Since Chris did the least, he should get the least money.

Score Point: 3

a. $\frac{3}{6}$

b. $\frac{1}{6}$

C. Jennie gets $8

Tom gets $6.50
Chris gets $5.50

Score Point: 2

a. $\frac{1}{2}$ = Jennie

b.

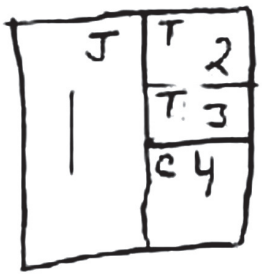
$= \frac{1}{4}$ for chris

c. Jennie = $12 because she did half the garden. half of 24 is 12.
Tom should get $8 because he did the 2nd most. Chris should get $4 because he did the least amount for the garden.

Score Point: 2

a. Jennie weeded $\frac{1}{2}$ of the yard

b



chris weeded 1 of the small parts of the yard wich $= \frac{1}{4}$

c. Jennie gets 16¢ and Chris gets 8¢.

$$\begin{array}{r} 16¢ \\ +\ 8¢ \\ \hline 24¢ \end{array}$$

Score Point: 1

A.	B.	C.
$\frac{1}{2}$	$\frac{3}{4}$	$\frac{5}{8}$

Score Point: 1

a. Jennie weeded one whole part of the garden.

b. Chris weeded about $\frac{1}{5}$ of the garden.

c. They should get six dollars each because if you multiply six and four you get twenty four dollars.

Score Point: 0

A. $\frac{1}{4}$

B. $\frac{1}{2}$

C. Jennie Tom Chris

$11 $16 $12

Score Point: 0

Item 2 Schedules

Standard: MA-05-2.2.01: Systems of Measurement – Students will determine elapsed time.

Bloom's Taxonomy: Application

Depth of Knowledge: Level 3

2. Jessica made this chart listing the activities she must do on Saturday morning and the amount of time each will take.

ACTIVITY	AMOUNT OF TIME
Practicing music	45 minutes
Cleaning bedroom	30 minutes
Snack break	15 minutes
Doing homework	45 minutes
Cleaning sink	10 minutes
Playing with sister	1 hour, 15 minutes

She will do these activities in the order listed above.

a. Jessica wants to complete all her activities at noon. What is the latest time she could start her activities and still finish them at noon? Show all the steps you used to find your answer.

b. Use the chart in the box below to write a schedule for Jessica listing the ending time for each of her activities. The activities should all be finished at noon.

ACTIVITY	STARTING TIME	ENDING TIME
Practicing music		
Cleaning bedroom		
Snack break		
Doing homework		
Cleaning sink		
Playing with sister		12:00

Schedules

Scoring Guide

Score	Description
4	The student response demonstrates an exemplary understanding of the Measurement concepts involved in solving a problem involving elapsed time and writing a schedule.
3	The student response demonstrates a good understanding of the Measurement concepts involved in solving a problem involving elapsed time and writing a schedule. Although there is significant evidence that the student was able to recognize and apply the concepts involved, some aspect of the response is missing or flawed. As a result the response merits 3 points.
2	The student response demonstrates a fair understanding of the Measurement concepts involved in solving a problem involving elapsed time and writing a schedule. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 2 points.
1	The student response demonstrates a minimal understanding of the Measurement concepts involved in solving a problem involving elapsed time and writing a schedule.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Sample Response:

Part a: 45 + 30 + 15 + 45 + 10 = 145 minutes, which is 2 hours, 25 minutes.
1 hour, 15 minutes + 2 hours, 25 minutes is 3 hours 40 minutes. So she has to start 3 hours and 40 minutes before 12:00. 9:00 is 3 hours before 12:00, and 40 minutes before 9:00 is 8:20. She needs to start by 8:20.

ACTIVITY	STARTING TIME	ENDING TIME
Practicing music	8:20	9:05
Cleaning bedroom	9:05	9:35
Snack break	9:35	9:50
Doing homework	9:50	10:35
Cleaning sink	10:35	10:45
Playing with sister	10:45	12:00

Sample Student Responses

Schedules

The time that Jessica could start her activitys is 8:20. 8:20-9:05-9:35-9:50-10:35-10:45-12:00

8:20-9:05-9:35-9:50-10:35

ACTIVITY	STARTING TIME	ENDING TIME
Practicing music	8:20	9:05
Cleaning bedroom	9:05	9:35
Snack break	9:35	9:50
Doing homework	9:50	10:35
Cleaning sink	10:35	10:45
Playing with sister	10:45	12:00

Score Point: 4

9:20

~~45~~
~~30~~
~~15~~
~~45~~
~~10~~
~~60~~
~~15~~
220 min.

60
60
60
40
3h. 40min.

ACTIVITY	STARTING TIME	ENDING TIME
Practicing music	9:20	10:00
Cleaning bedroom	10:00	10:30
Snack break	10:30	10:45
Doing homework	10:45	11:30
Cleaning sink	11:30	11:40
Playing with sister	11:40	12:00

Score Point: 3

9:00

2
45
30
15
45
10
+ 75
220

3
60) 220
- 180
40

4
9 10
12:00
- 3:40
8:60

ACTIVITY	STARTING TIME	ENDING TIME
Practicing music	8:40	9:10
Cleaning bedroom	9:10	9:40
Snack break	9:40	10:00
Doing homework	10:00	10:45
Cleaning sink	10:45	11:00
Playing with sister	11:00	12:00

Score Point: 2

The latest time would be about 6:00. I used my fingers and counted from 6:00 to 12:00. I thought that it would be good to have her do stuff for six hours.

ACTIVITY	STARTING TIME	ENDING TIME
Practicing music	7:25	8:05
Cleaning bedroom	8:05	8:35
Snack break	8:35	9:50
Doing homework	9:50	10:35
Cleaning sink	10:35	11:00
Playing with sister	10:45	12:00

Score Point: 2

12:00-45 min = 11:15
11:15-30min = 10:45
10:45-15 min = 10:30
1030-45 min = 9:45
9:45-10 min = 9:35

9:35 - 1hour 15 min = 8:20
The latest she can start is 8:20.

ACTIVITY	STARTING TIME	ENDING TIME
Practicing music	8:20	9:00
Cleaning bedroom	9:00	9:35
Snack break	9:35	9:55
Doing homework	9:55	10:35
Cleaning sink	10:35	11:00
Playing with sister	11:00	12:00

Score Point: 2

She would have to start at 5:00 and end 12:00.

ACTIVITY	STARTING TIME	ENDING TIME
Practicing music	4:00	5:00
Cleaning bedroom	5:00	6:30
Snack break	6:30	7:00
Doing homework	7:00	8:59
Cleaning sink	9:00	10:59
Playing with sister	11:00	12:00

Score Point: 1

8:00 8:30 9:00
Cleanbedroom, Doinghomework, Cleaning
Sink, 9:30 11:0:00
Playingwithhersister, Snackbreak,
10:30
Practireing music

ACTIVITY	STARTING TIME	ENDING TIME
Practicing music	10:30	11:00
Cleaning bedroom	8:00	8:30
Snack break	10:00	10:30
Doing homework	8:30	9:00
Cleaning sink	9:00	9:30
Playing with sister	9:30	12:00

Score Point: 1

practicing music, Cleaning bedroom, Snack break, Doing homework, cleaning sink, playing with sister,

ACTIVITY	STARTING TIME	ENDING TIME
Practicing music	45 minutes	2:20
Cleaning bedroom	30 minutes	1:40
Snack break	15 minutes	1:10
Doing homework	45 minutes	12:55
Cleaning sink	10 minutes	12:10
Playing with sister	1 hour, 15 min	12:00

Score Point: 0

Item 3 Buying Books

Standard: MA-05-2.1.04: Measuring Physical Attributes – Students will measure volume of rectangular prisms, liquid capacity, and money using standard units and apply these skills to solve real-world and mathematical problems.

Bloom's Taxonomy: Application

Depth of Knowledge: Level 2

3. Luis got the money shown below for his birthday. He plans to spend the money at the bookstore.

a. How much money does Luis have to spend?

b. Luis found two books he might want to buy. One costs $2.45 and the other costs $4.29. Use numbers to show whether Luis has enough money to buy both books.

c. Luis decides to buy a book that costs $4.55. He gives the clerk $5.00. List TWO different combinations of coins the clerk can give Luis as change.

Buying Books

Scoring Guide

Score	Description
4	The student response demonstrates an exemplary understanding of the Measurement concepts involved in solving problems involving money: bills and coins.
3	The student response demonstrates a good understanding of the Measurement concepts involved in solving problems involving money: bills and coins. Although there is significant evidence that the student was able to recognize and apply the concepts involved, some aspect of the response is missing or flawed. As a result the response merits 3 points.
2	The student response demonstrates a fair understanding of the Measurement concepts involved in solving problems involving money: bills and coins. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 2 points.
1	The student response demonstrates a minimal understanding of the Measurement concepts involved in solving problems involving money: bills and coins.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Sample Response:

Part a: $6.30

Part b: $2.45 + $4.29 = $6.74 He doesn't have enough money.
OR
$2 +$4 is $6. 45¢ + 29¢ is more than 30¢, so he doesn't have enough money.

Part c:
- one quarter and two dimes
- one nickel and 4 dimes

Sample Student Responses

Buying Books

A.

He has $6.30. to spend.

B.

$2.45
+ $4.29
$6.74

NO he does not. He needs 44¢ more.

C.

1 quarter and 2 dimes or 4 dimes and 1 nickel.

Score Point: 4

A. $6.30

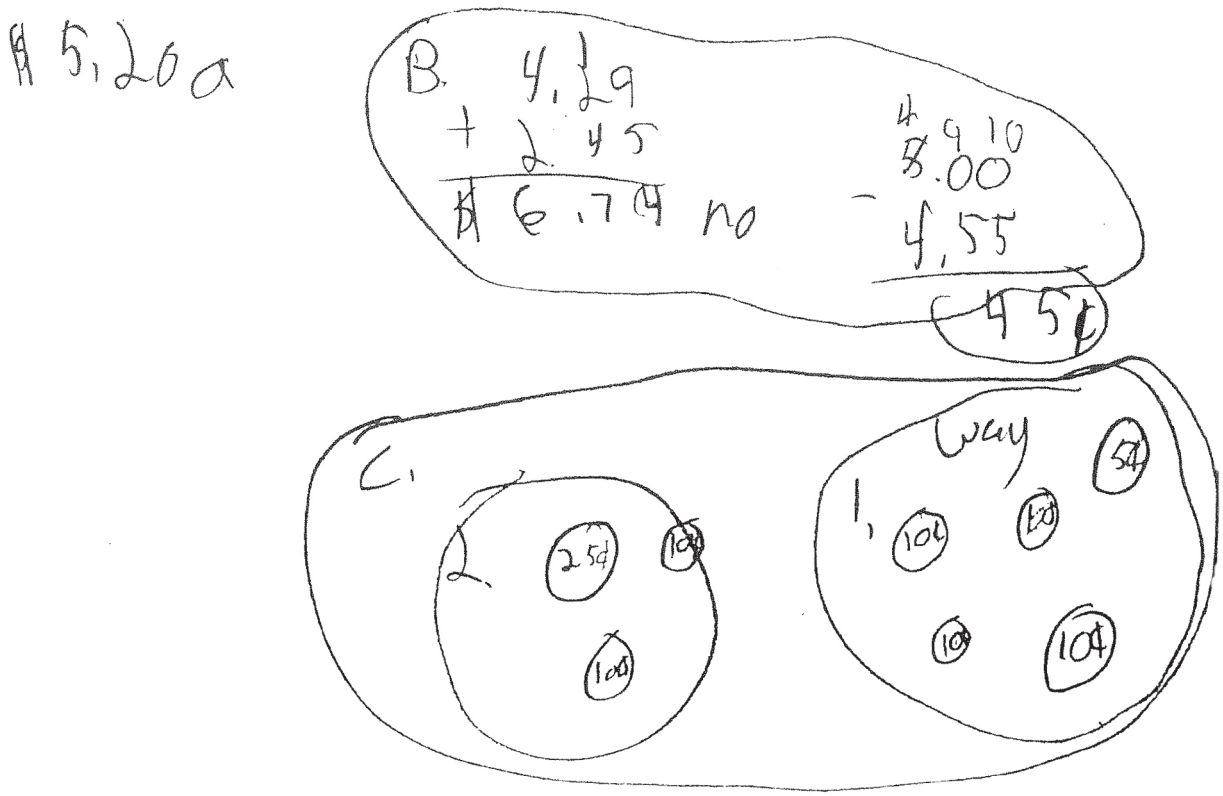
$5.00
75
90
+15
$6.30

$2.45
+4.29
$6.74

3. No, because I add them together.

C. Vqurter, 2dims

Score Point: 3



Score Point: 3

A) $6 30 B.

C) 2 quarters and a nickel, 5 dimes and 5 pennies.

$2.45
+4.29
$6.74

420

Score Point: 3

Luis has $6.30 to spend.
He doesnit have a enough
4dimes and 1nickle
1quarter two dimes

Score Point: 2

3
5.00
25
25
25
-5
5
5
+ 10
10
10
a. 10
13.0

12 9 1
13.00
7.45
- 4.29
5.36

yes he does

4 9 1
5.00
- 4.55
0.45

he could get 4 dimes and 1 nickel or 1 quarter and 2 dimes

Score Point: 2

(A) 6 dollars and 30¢

(B) no she doesn't

(C) on nickel and five cents

Score Point: 1

Luis has $6.20. Luis does not have enough money he has 6.20. The books cost $6.74. He get's back a dollar and twenty cents back.

Score Point: 1

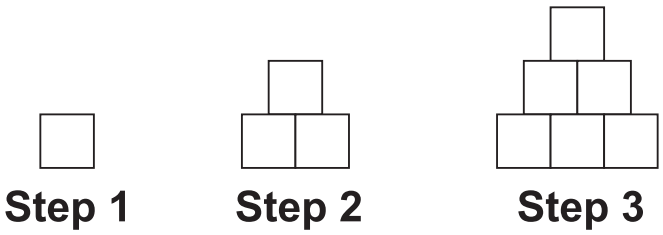
Item 4 Pattern Made of Squares

Standard: MA-05-5.1.01: Patterns, Relations, and Functions – Students will extend patterns, find the missing term(s) in a pattern, or describe rules for patterns (e.g., numbers, pictures, tables, words) from real-world and mathematical problems.

Bloom's Taxonomy: Comprehension

Depth of Knowledge: Level 3

4. Carol is making a pattern using small squares. The first three steps in her pattern are shown below.



a. Draw a picture of Step 4 in the pattern.

b. Complete the chart in the box below.

Step	1	2	3	4	5	6
Number of squares used	1	3	6			

c. How many squares are needed for Step 10? Show or explain how you found your answer.

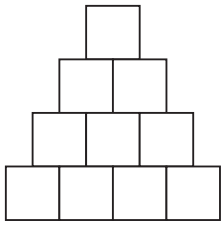
Pattern Made of Squares

Scoring Guide

Score	Description
4	The student response demonstrates an exemplary understanding of the concepts involved in extending a geometric pattern using pictures and numbers.
3	The student response demonstrates a good understanding of the concepts involved in extending a geometric pattern using pictures and numbers. Although there is significant evidence that the student was able to recognize and apply the concepts involved, some aspect of the response is missing or flawed. As a result the response merits 3 points.
2	The student response demonstrates a fair understanding of the concepts involved in extending a geometric pattern using pictures and numbers. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 2 points.
1	The student response demonstrates a minimal understanding of the concepts involved in extending a geometric pattern using pictures and numbers.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Sample Response:

Part a:



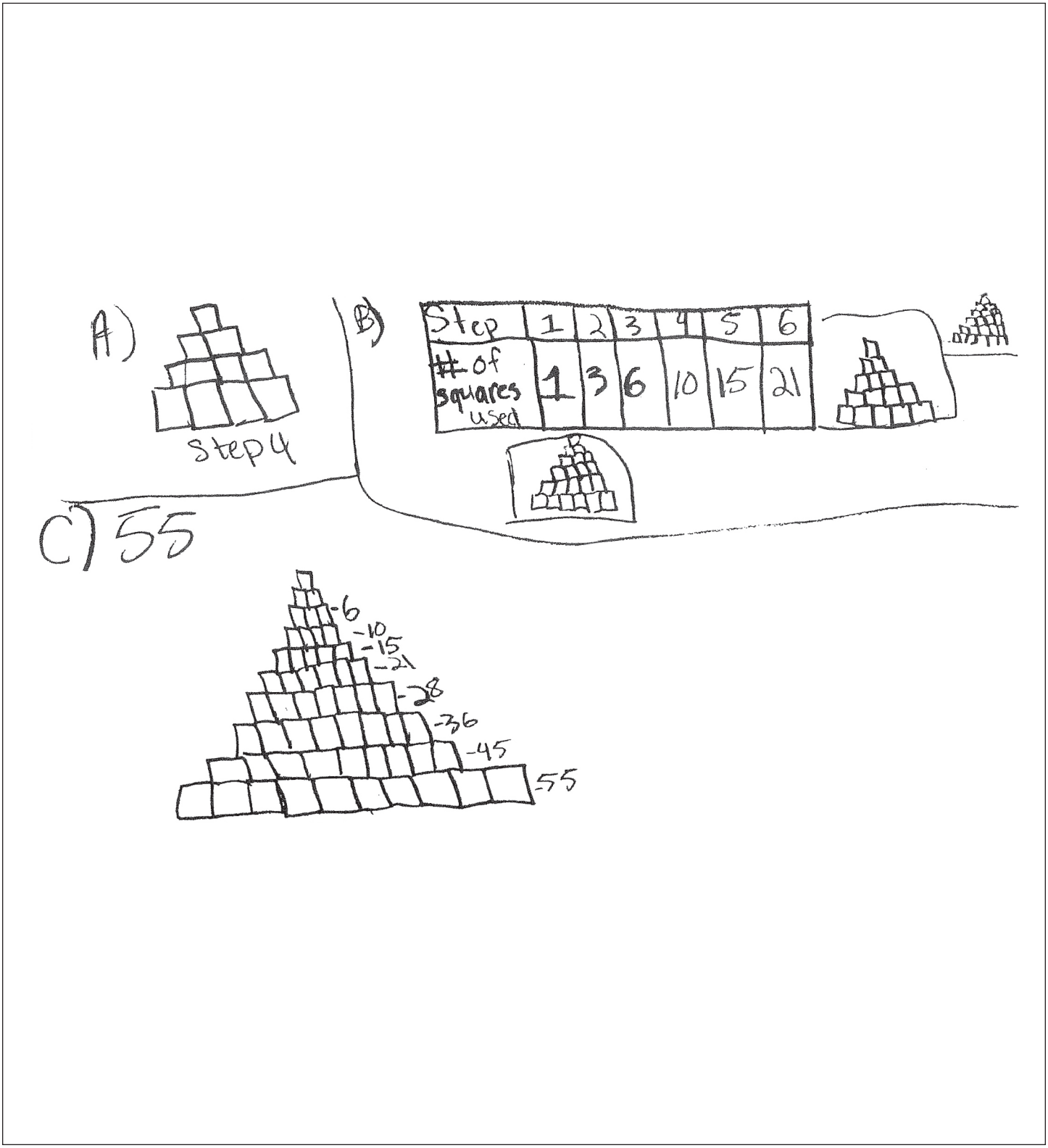
Part b:

Step	1	2	3	4	5	6
Number of squares used	1	3	6	10	15	21

Part c: 55. I started with 21. Then I added 21 + 7 + 8 + 9 + 10 = 55.

Sample Student Responses

Pattern Made of Squares



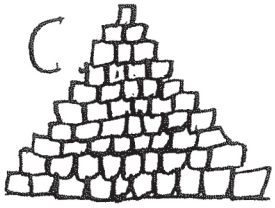
Score Point: 4

A.

B.

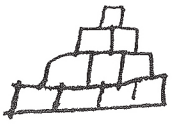
step	1	2	3	4	5	6
number of squares used	1	3	6	10	15	21

C.



Score Point: 3

A



B

	1	2	3	4	5	6
	1	3	6	10	15	21

a pattern +2 +3 ect

28 36 45 55 60

Score Point: 3

4	5	6	7	8
10	15	21	27	35

35 patterns for carol

Score Point: 2

Score Point: 1

a.

b.

steps	1	2	3	4	5	6
	1	3	6	9	12	15

I

c.

7	8	9	10
18	21	24	27

I Just added 3 to each number untill I got to ten.

Score Point: 0