

2007

Green River
*Regional Educational
Cooperative*

GRADE 3
MATHEMATICS



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

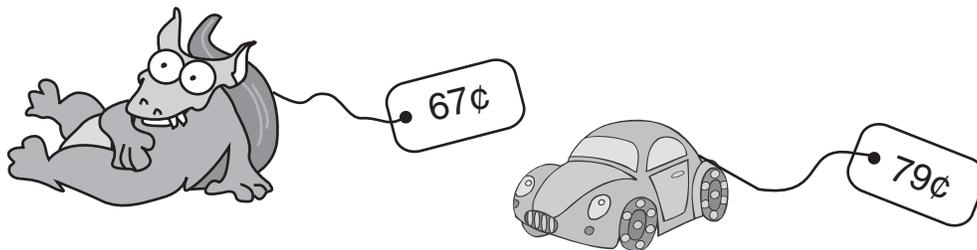
Item 1 Jena Goes Toy Shopping

Standard: MA-EP-1.3.01: Number Operations — Students will analyze real-world problems to identify appropriate representations using mathematical operations, and will apply operations to solve real-world problems with the following constraints: add and subtract whole numbers with three digits or less; multiply whole numbers of 10 or less; add and subtract fractions with like denominators less than or equal to four; and add and subtract decimals related to money.

Bloom's Taxonomy: Application

Depth of Knowledge: Level 2

1. Jena has \$2.00 to spend at the store. She wants to buy the two toys shown below.



- a. How much will Jena have to pay for the two toys? Show your work.
- b. How much of her \$2.00 will Jena have left after she buys the two toys? Show your work.

Jena Goes Toy Shopping

Scoring Guide

Score	Description
4	The student response demonstrates an exemplary understanding of the concepts involved in adding and subtracting decimals related to money.
3	The student response demonstrates a good understanding of the concepts involved in adding and subtracting decimals related to money. 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 adding and subtracting decimals related to money. 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 adding and subtracting decimals related to money.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Additional Notes

Evaluate the correctness of Part b in terms of the answer the student gave to Part a. For example, if the student answered \$1.36 for Part a, then the correct answer for Part b is \$0.64 instead of \$0.54.

Sample Response:

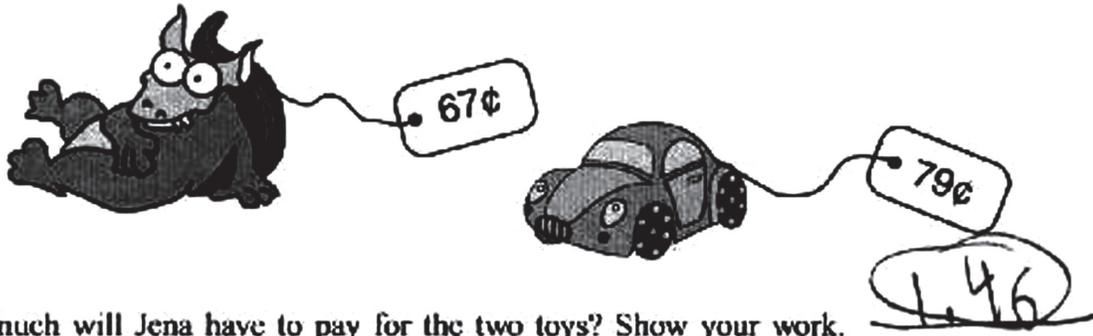
$$\text{Part a: } 67¢ + 79¢ = \$1.46$$

$$\text{Part b: } \$2.00 - 1.46 = \$0.54$$

Sample Student Responses

Jena Goes Toy Shopping

Jena has \$2.00 to spend at the store. She wants to buy the two toys shown below.



a. How much will Jena have to pay for the two toys? Show your work.

$$\begin{array}{r} 79 \\ + 67 \\ \hline 146 \end{array}$$

how
first I did
 $79 + 67 = 146$
total

why
because
I had to
find out
how much
their prices
are together
1.46

b. How much of her \$2.00 will Jena have left after she buys the two toys? Show your work.

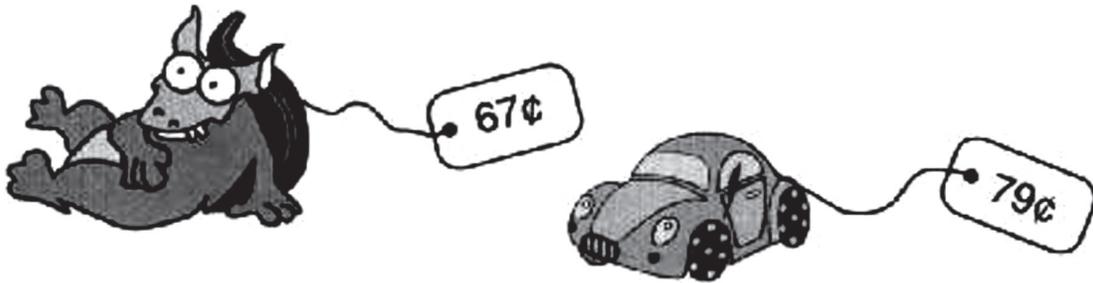
$$\begin{array}{r} 2.00 \\ - 1.46 \\ \hline 0.54 \end{array}$$

how
First I
did 2.00
- 1.46

why
because
I had
to find out
how much
would be
left after
she bought
the toys.

Score Point: 4

Jena has \$2.00 to spend at the store. She wants to buy the two toys shown below.



a. How much will Jena have to pay for the two toys? Show your work.

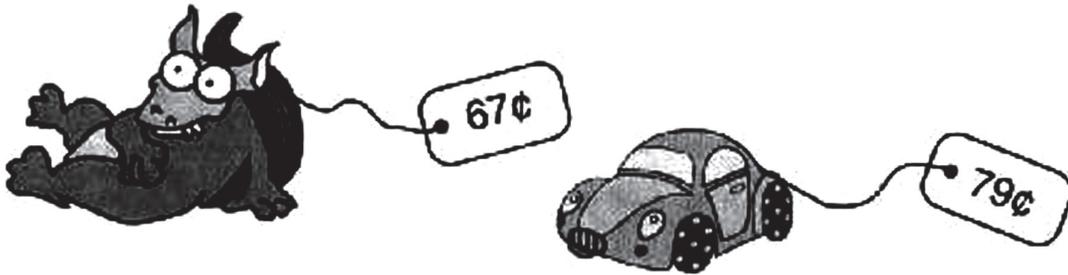
\$ 1.46 ¢

b. How much of her \$2.00 will Jena have left after she buys the two toys? Show your work.

54¢

Score Point: 3

Jena has \$2.00 to spend at the store. She wants to buy the two toys shown below.



a. How much will Jena have to pay for the two toys? Show your work.

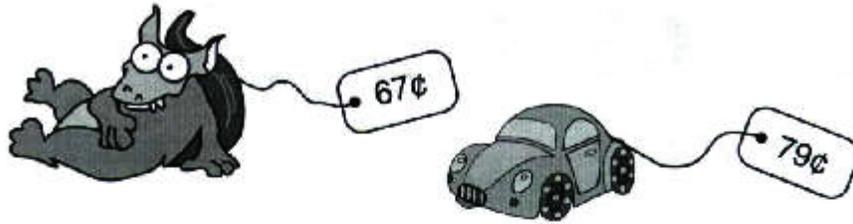
$$\begin{array}{r} 67¢ \\ + 79¢ \\ \hline \$1.46 \end{array}$$

b. How much of her \$2.00 will Jena have left after she buys the two toys? Show your work.

$$\begin{array}{r} 79 \\ - 67 \\ \hline 12¢ \end{array}$$

Score Point: 2

Jena has \$2.00 to spend at the store. She wants to buy the two toys shown below.



a. How much will Jena have to pay for the two toys? Show your work.

$$\begin{array}{r} 67 \\ +79 \\ \hline 136 \end{array}$$

b. How much of her \$2.00 will Jena have left after she buys the two toys? Show your work.

$$\begin{array}{r} 2.00 \\ -1.36 \\ \hline 0.64 \end{array}$$

Score Point: 1

Item 2 Jon's Stamp Collection

Standard: MA-EP-1.3.01: Number Operations — Students will analyze real-world problems to identify appropriate representations using mathematical operations, and will apply operations to solve real-world problems with the following constraints: add and subtract whole numbers with three digits or less; multiply whole numbers of 10 or less; add and subtract fractions with like denominators less than or equal to four; and add and subtract decimals related to money.

Bloom's Taxonomy: Application

Depth of Knowledge: Level 2

2. Jon collects stamps.
 - He has 157 United States stamps.
 - He has 39 stamps from other countries.
 - a. How many stamps does Jon have in his collection? Show how you found your answer.
 - b. How many more stamps does Jon have from the United States than from other countries? Show how you found your answer.

Jon's Stamp Collection

Scoring Guide

Score	Description
4	The student response demonstrates an exemplary understanding of the concepts involved in applying addition and subtraction of whole numbers to solve real-world problems.
3	The student response demonstrates a good understanding of the concepts involved in applying addition and subtraction of whole numbers to 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 concepts involved in applying addition and subtraction of whole numbers to 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 concepts involved in applying addition and subtraction of whole numbers to 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: $157 + 39 = 196$

Part b: $157 - 39 = 118$

Sample Student Responses

Jon's Stamp Collection

Jon collects stamps.

- He has 157 United States stamps.
- He has 39 stamps from other countries.

a. How many stamps does Jon have in his collection? Show how you found your answer.

$$\begin{array}{r} 157 \\ + 39 \\ \hline 196 \end{array} \quad 196 \text{ stamps}$$

First, I add $157 + 39$. Next I figured out the answer.

b. How many more stamps does Jon have from the United States than from other countries? Show how you found your answer.

$$\begin{array}{r} 4 \\ 157 \\ - 39 \\ \hline 118 \end{array}$$

118 stamps

First, I subtract $157 - 39$. Next, I figured out the answer.

Score Point: 4

Jon collects stamps.

- He has 157 United States stamps.
- He has 39 stamps from other countries.

a. How many stamps does Jon have in his collection? Show how you found your answer.

$$\begin{array}{r} 157 \\ + 39 \\ \hline 296 \end{array}$$

b. How many more stamps does Jon have from the United States than from other countries? Show how you found your answer.

$$\begin{array}{r} 157 \\ - 39 \\ \hline 118 \end{array}$$

Score Point: 3

Jon collects stamps.

- He has 157 United States stamps.
- He has 39 stamps from other countries.

a. How many stamps does Jon have in his collection? Show how you found your answer.

$$\begin{array}{r} 157 \\ + 39 \\ \hline 196 \end{array}$$

b. How many more stamps does Jon have from the United States than from other countries? Show how you found your answer.

$$90$$

Score Point: 2

Jon collects stamps.

- He has 157 United States stamps.
- He has 39 stamps from other countries.

a. How many stamps does Jon have in his collection? Show how you found your answer.

First, I took 157 and 39 and I add it up.
Last, I found the answer was 286,

$$\begin{array}{r} 157 \\ + 39 \\ \hline 286 \end{array}$$

b. How many more stamps does Jon have from the United States than from other countries?
Show how you found your answer.

Score Point: 1

Item 3 Third-Grade Class Survey

Standard: MA-EP-4.1.03: Data Representations — Students will organize and display data.

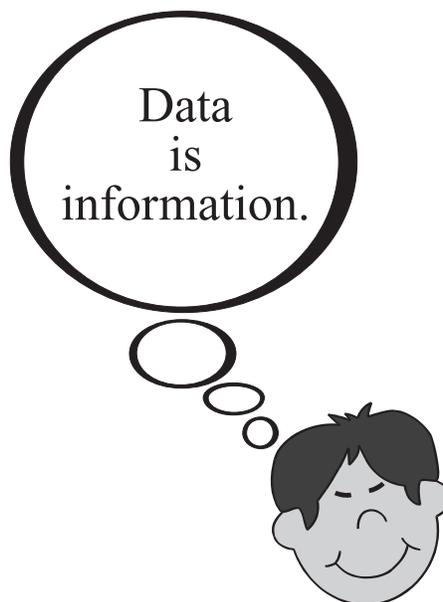
Bloom's Taxonomy: Analysis

Depth of Knowledge: Level 2

3. The third-grade class did a survey to find out their favorite sports. Here are the results.

- Alana – gymnastics
- Heather – soccer
- Michael – baseball
- Brett – hockey
- Richard – gymnastics
- Maggie – soccer
- Michelle – baseball
- Stacey – gymnastics
- Angela – soccer
- Darin – soccer
- Ryan – baseball
- Nick – soccer

- a. Make a chart or table that shows how many students chose each sport.
- b. Make a graph of the data from the survey. Make sure you label your graph.
- c. Write a statement about one thing your graph shows.



Third-Grade Class Survey**Scoring Guide**

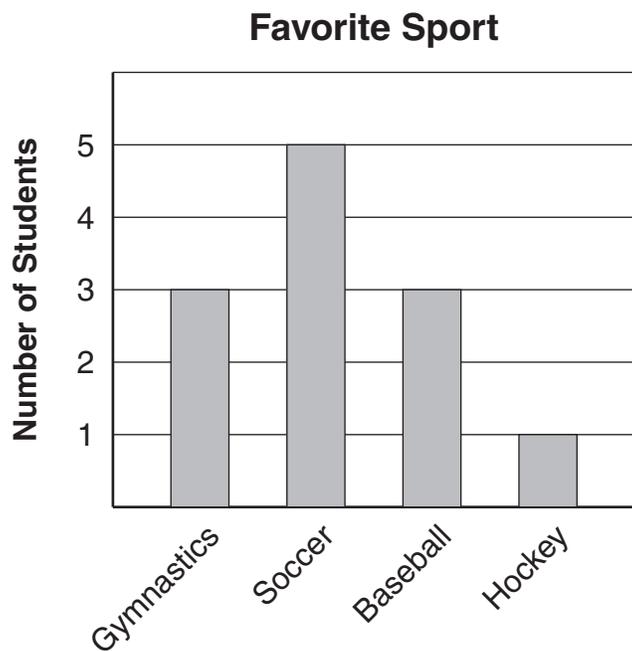
Score	Description
4	The student response demonstrates an exemplary understanding of the concepts involved in organizing and displaying data.
3	The student response demonstrates a good understanding of the concepts involved in organizing and displaying data. Although there is significant evidence that 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 organizing and displaying data. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student response merits 2 points.
1	The student response demonstrates a minimal understanding of the concepts involved in organizing and displaying data.
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:

Sports	Number of Students
Gymnastics	3
Soccer	5
Baseball	3
Hockey	1

Part b:



Part c: More students like soccer than any of the other sports.

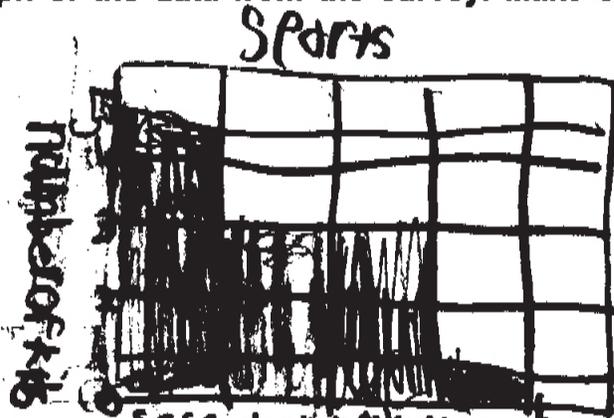
Sample Student Responses

Third-Grade Class Survey

a. Make a chart or table that shows how many students chose each sport.

	Tally	Total
soccer		5
baseball		3
gymnastics		3
hockey		4

b. Make a graph of the data from the survey. Make sure you label your graph.



c. Write a statement about one thing your graph shows.

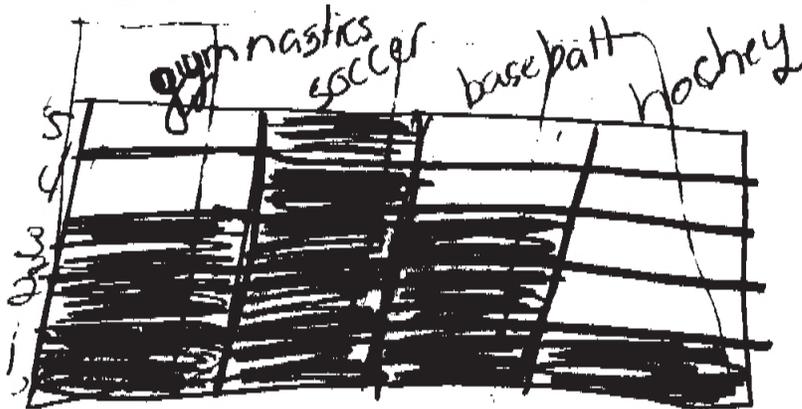
Soccer subtract hockey is 4.

Score Point: 4

a. Make a chart or table that shows how many students chose each sport.

gymnastics	soccer	baseball	hockey
Alana Richard Stacey	Heather Maggie Angela Darin Nick	Michael Michelle Ryan	Brett

b. Make a graph of the data from the survey. Make sure you label your graph.

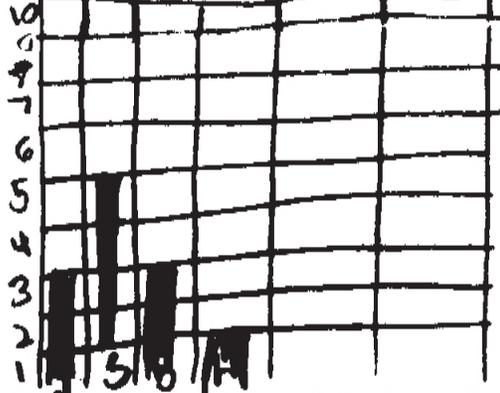


c. Write a statement about one thing your graph shows.

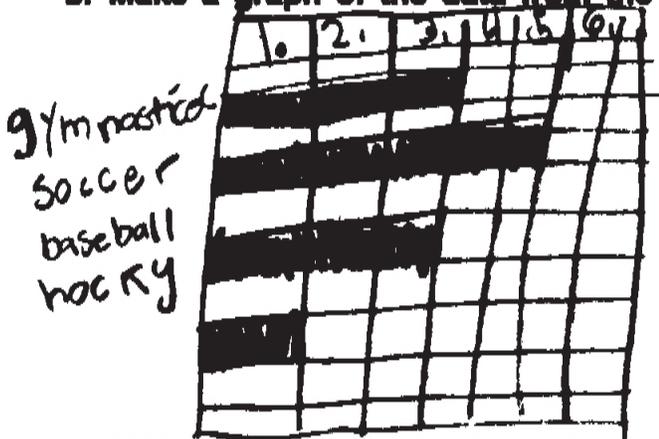
My graph shows how many sports everyone did.

Score Point: 3

a. Make a chart or table that shows how many students chose each sport.



b. Make a graph of the data from the survey. Make sure you label your graph.



c. Write a statement about one thing your graph shows.

My graph shows how many
Each person likes for a sport.

Score Point: 2

a. Make a chart or table that shows how many students chose each sport.

3 gymnastics	5 soccer	1 hockey
3 base ball		
1		

b. Make a graph of the data from the survey. Make sure you label your graph.

gymnastics	hockey	soccer	baseball
1	1	1	1
1		1	1
1		1	1
		1	1

c. Write a statement about one thing your graph shows.

Separating 4 things the
lots of peapl pick.

Score Point: 1

a. Make a chart or table that shows how many students chose each sport.

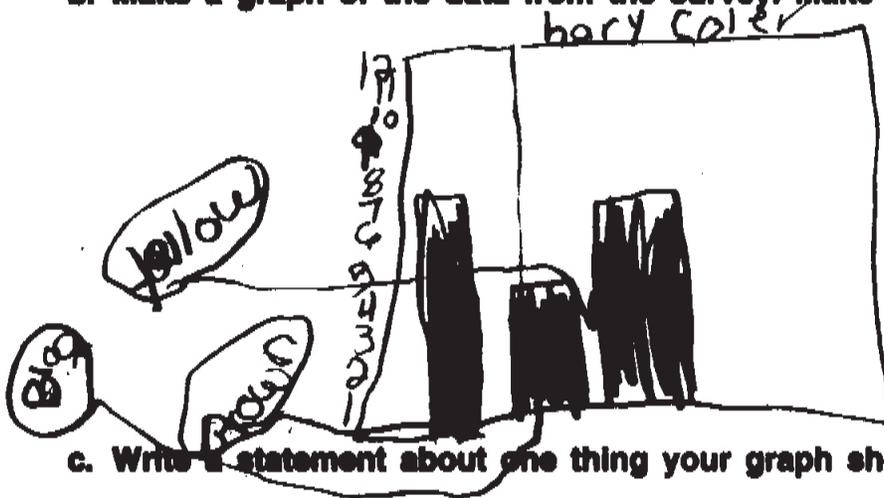
3 gymnastics

5 soccer

2 Baseball

1 hockey

b. Make a graph of the data from the survey. Make sure you label your graph.



c. Write a statement about one thing your graph shows.

Score Point: 1

Item 4 Animal Crackers

Standard: MA-EP-1.3.01: Number Operations — Students will analyze real-world problems to identify appropriate representations using mathematical operations, and will apply operations to solve real-world problems with the following constraints: add and subtract whole numbers with three digits or less; multiply whole numbers of 10 or less; add and subtract fractions with like denominators less than or equal to four; and add and subtract decimals related to money.

Bloom's Taxonomy: Analysis

Depth of Knowledge: Level 2

4. Martin wants to buy some animal crackers. The sign on the machine says:

EACH ITEM—50¢. USE NICKELS, DIMES, AND QUARTERS. USE EXACT CHANGE ONLY.

Martin decides that one way to pay for the crackers is to use 4 dimes and 2 nickels.

- What other ways can Martin pay for the animal crackers? Show as many ways as possible that he can use nickels, dimes, and quarters to buy the animal crackers.
- Draw and label the fewest coins Martin can use.
- Draw and label the most coins Martin can use.

Animal Crackers

Scoring Guide

Score	Description
4	The student response demonstrates an exemplary understanding of the concepts involved in applying addition and subtraction of whole numbers to solve real-world problems.
3	The student response demonstrates a good understanding of the concepts involved in applying addition and subtraction of whole numbers to 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.
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1	The student response demonstrates a minimal understanding of the concepts involved in applying addition and subtraction of whole numbers to 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: 2 quarters
 1 quarter, 2 dimes, 1 nickel
 1 quarter, 1 dime, 3 nickels
 1 quarter, 5 nickels
 5 dimes
 3 dimes, 4 nickels
 2 dimes, 6 nickels
 1 dime, 8 nickels
 10 nickels

Part b:



2 Quarters

Part c:



10 Nickels

Sample Student Responses

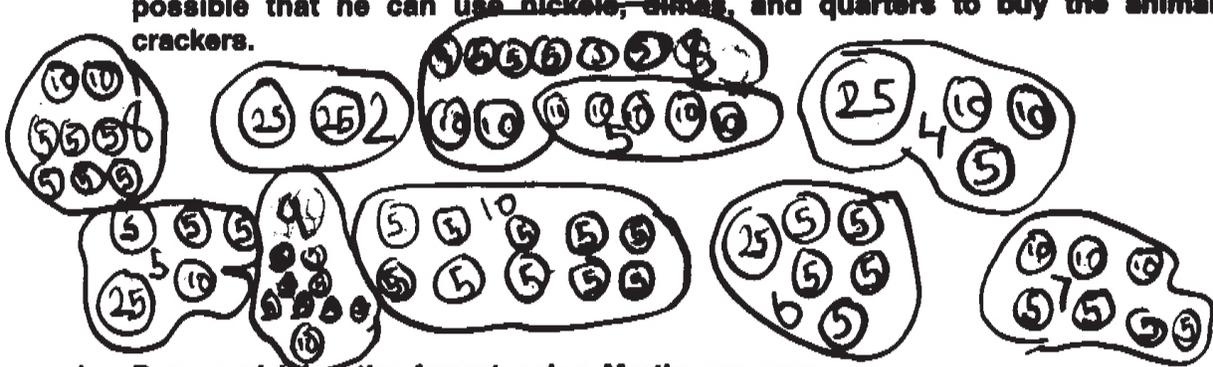
Animal Crackers

Martin wants to buy some animal crackers. The sign on the machine says:

EACH ITEM—50¢.
USE NICKELS, DIMES, AND QUARTERS.
USE EXACT CHANGE ONLY.

Martin decides that one way to pay for the crackers is to use 4 dimes and 2 nickels.

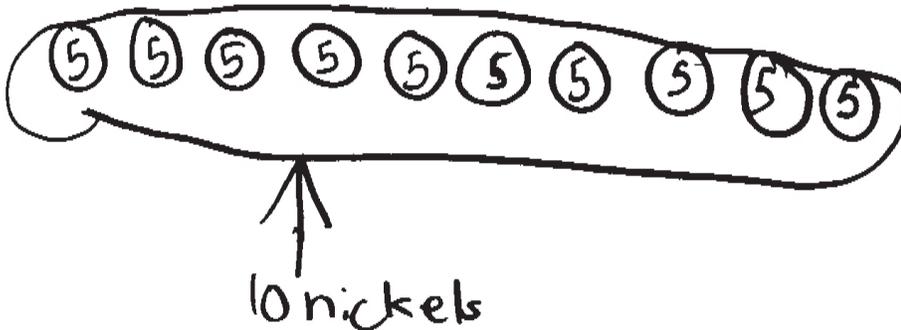
a. What other ways can Martin pay for the animal crackers? Show as many ways as possible that he can use nickels, dimes, and quarters to buy the animal crackers.



b. Draw and label the fewest coins Martin can use.



c. Draw and label the most coins Martin can use.



Score Point: 4

Martin wants to buy some animal crackers. The sign on the machine says:

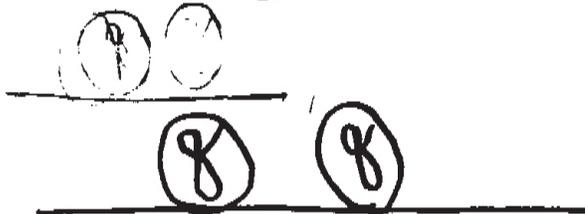
EACH ITEM—50¢.
 USE NICKELS, DIMES, AND QUARTERS.
 USE EXACT CHANGE ONLY.

Martin decides that one way to pay for the crackers is to use 4 dimes and 2 nickels.

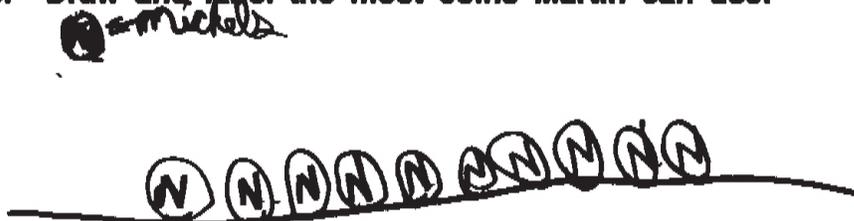
- a. What other ways can Martin pay for the animal crackers? Show as many ways as possible that he can use nickels, dimes, and quarters to buy the animal crackers.

Two quarters, Five dimes, ten nickels
one quarter, two dimes and one nickel.

- b. Draw and label the fewest coins Martin can use.



- c. Draw and label the most coins Martin can use.



Score Point: 3

Martin wants to buy some animal crackers. The sign on the machine says:

EACH ITEM—50¢.
 USE NICKELS, DIMES, AND QUARTERS.
 USE EXACT CHANGE ONLY.

Martin decides that one way to pay for the crackers is to use 4 dimes and 2 nickels.

- a. What other ways can Martin pay for the animal crackers? Show as many ways as possible that he can use nickels, dimes, and quarters to buy the animal crackers.

Two Quarters
 Ten Nickels
 Five Dimes

- b. Draw and label the fewest coins Martin can use.


 2 Quarters

- c. Draw and label the most coins Martin can use.


 10 Nickels

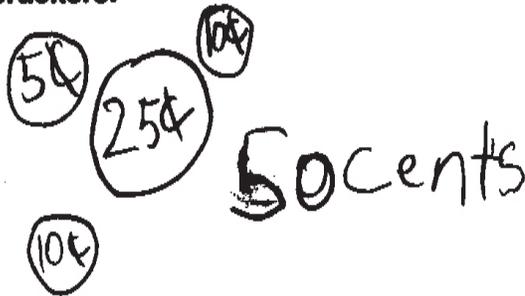
Score Point: 2

Martin wants to buy some animal crackers. The sign on the machine says:

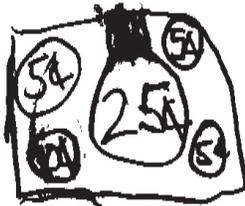
EACH ITEM—50¢.
USE NICKELS, DIMES, AND QUARTERS.
USE EXACT CHANGE ONLY.

Martin decides that one way to pay for the crackers is to use 4 dimes and 2 nickels.

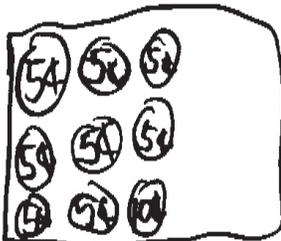
- a. What other ways can Martin pay for the animal crackers? Show as many ways as possible that he can use nickels, dimes, and quarters to buy the animal crackers.



- b. Draw and label the fewest coins Martin can use.



- c. Draw and label the most coins Martin can use.



Score Point: 1

Martin wants to buy some animal crackers. The sign on the machine says:

EACH ITEM—50¢.
USE NICKELS, DIMES, AND QUARTERS.
USE EXACT CHANGE ONLY.

Martin decides that one way to pay for the crackers is to use 4 dimes and 2 nickels.

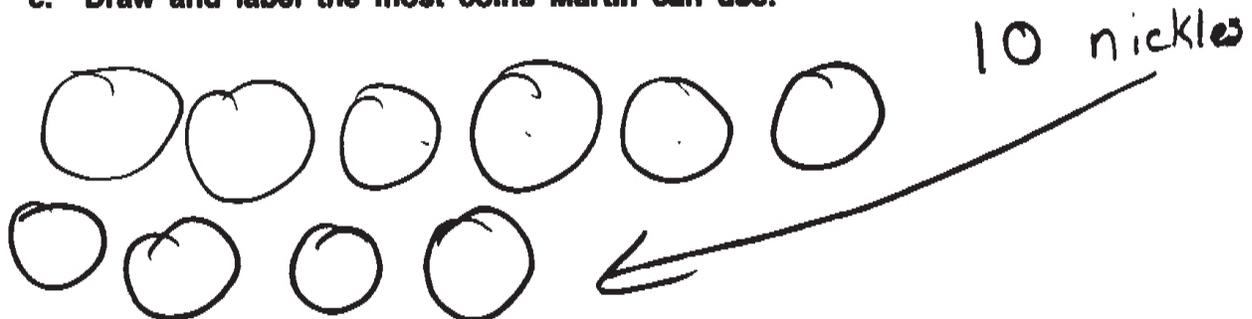
- a. What other ways can Martin pay for the animal crackers? Show as many ways as possible that he can use nickels, dimes, and quarters to buy the animal crackers.



- b. Draw and label the fewest coins Martin can use.



- c. Draw and label the most coins Martin can use.



Score Point: 1

