

Title:	A Trip to the Toy Store
Grade:	3
Claim(s):	<p>Claim 4: Modeling and Data Analysis Students can analyze complex, real-world scenarios and can construct and use mathematical models to interpret and solve problems.</p> <p>Claim 3: Communicating Reasoning Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others.</p> <p>Claim 2: Problem Solving Students can solve a range of well-posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies.</p>
Assessment Target(s):	<p>Claim 4 A. Apply mathematics to solve problems arising in everyday life, society, and the workplace. E. Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon.</p> <p>Claim 3 C. State logical assumptions being used. E. Distinguish correct logic or reasoning from that which is flawed and—if there is a flaw in the argument—explain what it is.</p> <p>Claim 2 A. Apply mathematics to solve well-posed problems in pure mathematics and arising in everyday life, society, and the workplace C. Interpret results in the context of a situation.</p>
Standard(s):	<p>Item 1- 3.OA.3, 3.OA.1 C4TE Item 2- 3.MD.1 C3TE Item 3- 3.NBT.1, 3.NBT.2 C2TC Item 4- 3.NBT.2, OA.8 C2TA Item 5 - 3.OA.3 C4TA Item 6- - 3.MD.7b C3TC</p> <p>3.OA.1, 3.OA.3, 3.OA.8, 3.MD.1, 3.MD.7b, 3.NBT.1, 3.NBT.2</p>
Mathematical Practice(s):	1, 2, 3, 5, 6, 7
Revised Bloom's Taxonomy Level:	Analyze - 4
DOK Level:	Strategic Thinking/Reasoning - 3
Score Points:	11 points possible
Difficulty:	Medium
Resources:	N/A
Notes:	N/A
Task Overview:	The students will use the four operations in multiple situations to complete task.
Teacher Preparation/Resource Requirements:	None required

Time Requirements:

Approximately 60-80 minutes

Prework:

None

Your friend, Brooklyn, has saved up money for a trip to the local toy store. You will use the information given to help answer questions about her trip.

Part A

- Brooklyn knew that her parents were going to take her to a toy store to buy some new toys with the money she had been saving up. Before going to the store, Brooklyn wanted to separate the toys she did not want any more into groups for her friends. This way, Brooklyn had room in her toy box for her new toys. Brooklyn split her toys into the groups shown below.



Sample Top-Score Response

Which equation represents the total number of toys Brooklyn will give her friends?

- A. $4 \times 4 = x$
- B. $3 \times 5 = x$
- C. $3 \times 4 = x$
- D. $4 \times 2 = x$

C. $3 \times 4 = x$

- Brooklyn spent time with her dad looking at toys on the Internet before she went to the toy store. This is how she found the price of toys and where she could buy them. She was on the Internet looking for toys from 1:30 to 2:45. Her sister claimed that she was on the internet for

two hours looking for toys. Is Brooklyn's sister correct?

- A. Yes, Brooklyn's sister is correct. Brooklyn spent two hours on the internet because the clock changed from a one to a two in the hour.
- B. No, Brooklyn's sister is not correct. Brooklyn had spent more than two hours on the internet because the hour went up and the minutes went up.
- C. No, Brooklyn's sister is not correct. Brooklyn spent only 15 minutes on the Internet, since the 45 minutes minus 30 minutes is 15 minutes.
- D. No, Brooklyn's sister is not correct. Brooklyn had only spent 1 hour and 15 minutes on the Internet since $245 - 130$ is only 115.

D. No, Brooklyn's sister is not correct. Brooklyn had only spent 1 hour and 15 minutes on the Internet since $245 - 130$ is only 115.

Part B

3. Brooklyn was checking prices of toys online before she went to the store. She knew that she had \$100 saved up, and was receiving \$30 from her grandmother to spend. She noticed that five of the toys she wanted cost \$17, \$34, \$29, \$28, and \$24. To check if she had enough money, Brooklyn decided to round the cost of each toy to the nearest 10. Decide whether or not it is a good idea for Brooklyn to round to the nearest 10 and explain why or why not.

It is not a good idea for Brooklyn to round the cost of each toy. This will make her think that she has enough money, but she really does not. If you round these numbers and add them, you get \$130, but together, they really cost \$132. Brooklyn would not have enough money to buy them all, and if she rounds she will think that she does.

4. When Brooklyn finally went to the toy store, she found that the toys she saw online were on sale. This meant the price of each toy went down. Brooklyn wants to buy the six toys. The toys were on sale for \$12, \$27, \$20, \$26, \$18, and \$26. Using the amount of money Brooklyn had in question 3, find whether she would have enough money. Explain why or why not.

Brooklyn would have enough money to buy all six toys. If I add the numbers, I find that the toys would cost \$129. If she has \$130, like the previous question stated, she would have \$1 left after buying all six toys.

5. After buying two toys for \$44, Brooklyn decided to spend the rest of her money on both her and her sister. She wanted to spend the same amount of her left over money on herself and her sister. Set up and solve two equations you would use to solve for the amount of money she would spend on her sister. Then explain why you set up your equations like that.

The equations I should set up and solve is $130 - 44 = 86$ and $86 \div 2 = 43$. I set up my equations this way because I first had to find how much money Brooklyn had after spending \$44 and then I had to divide that total by 2 to see how much money she could spend on her sister, since she wanted to spend the same amount of her left over money on both of them.

6. To get the toys home, Brooklyn decided to put them in the trunk of her family's car. Brooklyn claimed that all of the toys would fit in the trunk of her family's car. If the trunk of the car is 4 feet long and 5 feet wide, what assumption did Brooklyn make about the size of her toys? Explain your reasoning.

Brooklyn assumed that her toys would not take up more than 20 square feet of space. If she believed they would take up more than that area, they would need to be stacked up on top of one another to fit in the trunk.

Rationales for Part A:

Rationales Question 1:	
A.	Student(s) have realized that there is only three groups of toys, opposed to four groups of toys.
B.	Student(s) may have miscounted the amount of toys in each group by one.
C.	Correct answer
D.	Student(s) may have incorrectly accounted for only two of the three groups of toys, thinking that Brooklyn was keeping one group for herself.

Rationales Question 2:	
A.	Student(s) may not have realized that although the minutes and hour did increase, a full two hours had not passed.
B.	Student(s) may not have understood how to tell elapsed time.
C.	Student(s) may not have noticed that the hour had changed from one to two.
D.	Correct answer

Scoring Rubric for Part B:

Scoring Rubric Question 3:	
2 Points:	The student demonstrates thorough understanding of the significance of rounding. The student correctly rounds each of the numbers and determines that it is not a good idea for Brooklyn to round the cost of each toy because she will incorrectly believe she has enough money to purchase all the toys mentioned.
1 Point:	The student demonstrates some understanding of the significance of rounding. The student correctly rounds each of the numbers but does not determine that it is not a good idea for Brooklyn to round the cost of each toy because she will incorrectly believe she has enough money to purchase all the toys mentioned or the student incorrectly rounds some of the numbers but does determine that it is not a good idea for Brooklyn to round the cost of each toy because she will incorrectly believe she has enough money to purchase all the toys mentioned.
0 Points:	The student demonstrates little to no understanding of the significance of rounding. The student does not correctly round the numbers and does not determine that it is a bad idea for Brooklyn to round the numbers to see if she has enough money.

Scoring Rubric Question 4*:	
2 Points:	The student demonstrates a thorough understanding of using reasoning and addition. The student determines that Brooklyn will have enough money and correctly explains why.
1 Point:	The student demonstrates some understanding of using reasoning and addition. The student determines that Brooklyn will have enough money but does not correctly explain why.
0 Points:	The student demonstrates little to no understanding of using reasoning and addition. The student does not correctly determine that Brooklyn will have enough money and does not correctly explain why.

**A student should receive full credit for this question if they correctly calculate with the incorrect numbers from the previous question(s).*

Scoring Rubric Question 5*:	
3 Points:	The student demonstrates a thorough understanding of subtraction and division. The student correctly sets up an equation to show how much money Brooklyn has after spending \$44 and correctly sets up an equation to show how much both her and her sister will have to spend. The student correctly solves both equations and explains why they set up their equations as they did.
2 Points:	The student demonstrates a good understanding of subtraction and division. The student correctly sets up an equation to show how much money Brooklyn has after spending \$44 or correctly sets up an equation to show how much both her and her sister will have to spend. The student correctly solves both equations they set up and explains why they set up their equations as they did.
1 Point:	The student demonstrates some understanding of subtraction and division. The student sets up an equation to show how much money Brooklyn has after spending \$44 and sets up an equation to show how much both her and her sister will have to spend, but the equations may not be correct. The student correctly solves both equations they set up and may or may not explain why they set up their equations as they did.
0 Points:	The student demonstrates little to no understanding of subtraction and division. The student does not correctly set up the equations, does not correctly solve the equations, and does not correctly explain their reasoning for setting up the equations.

**A student should receive full credit for this question if they correctly calculate with the incorrect numbers from the previous question(s).*

Scoring Rubric Question 6:	
2 Points:	The student demonstrates a thorough understanding of using and interpreting the area of a space. The student correctly notes that Brooklyn thought that her toys would not take up more than 20 square feet of space and correctly explains their reasoning.
1 Point:	The student demonstrates some understanding of using and interpreting the area of a space. The student correctly notes that Brooklyn thought that her toys would not take up more than 20 square feet of space but does not correctly explain their reasoning.
0 Points:	The student demonstrates little to no understanding of using and interpreting the area of a space. The student does not explain that Brooklyn believes her toys will take up 20 square feet of space or less and does not correctly explain their reasoning.