

# Rules, Tables, and Graphs

1. Ming's function machine triples a number, then subtracts three.  
Jackie's function machine doubles a number, then subtracts two.

**Table A**

Input	Output	Ordered Pairs (Input, Output)
1	0	(1, 0)
2	3	(2, 3)
3	6	(3, 6)

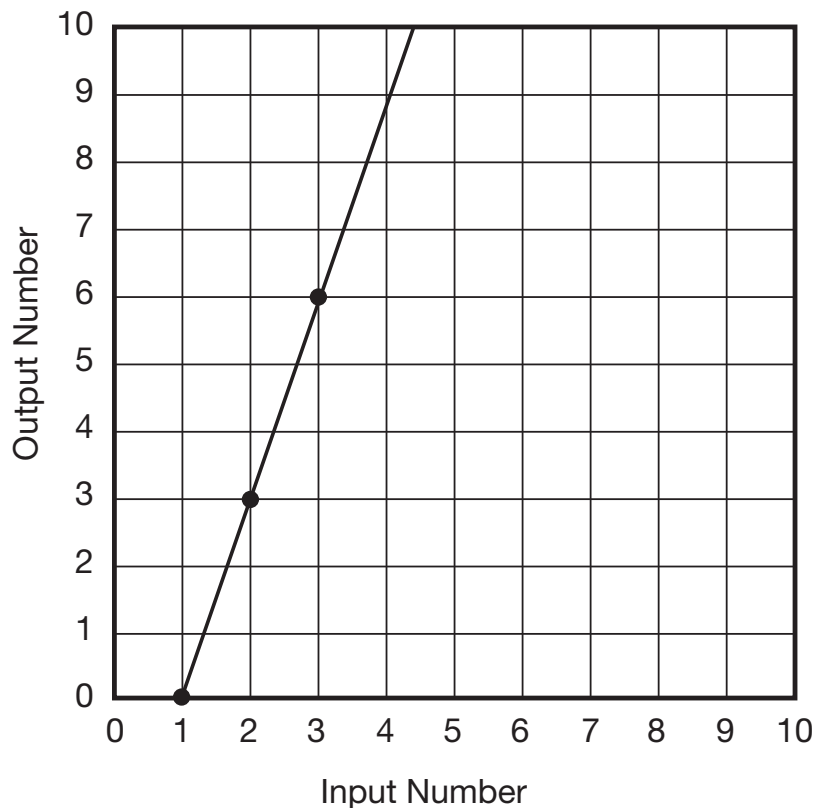
**Table B**

Input	Output	Ordered Pairs (Input, Output)
1	0	(1, 0)
2	2	(2, 2)
3	4	(3, 4)

**A.** Which function table is Ming's? \_\_\_\_\_

**B.** Which function table is Jackie's? \_\_\_\_\_

**C.** Ming and Jackie graphed the data in their function tables. Is this Ming's graph or Jackie's graph? How do you know?



**D.** Graph the points in the other table. Draw a line.

2. Maya's and Roberto's function tables have different rules.

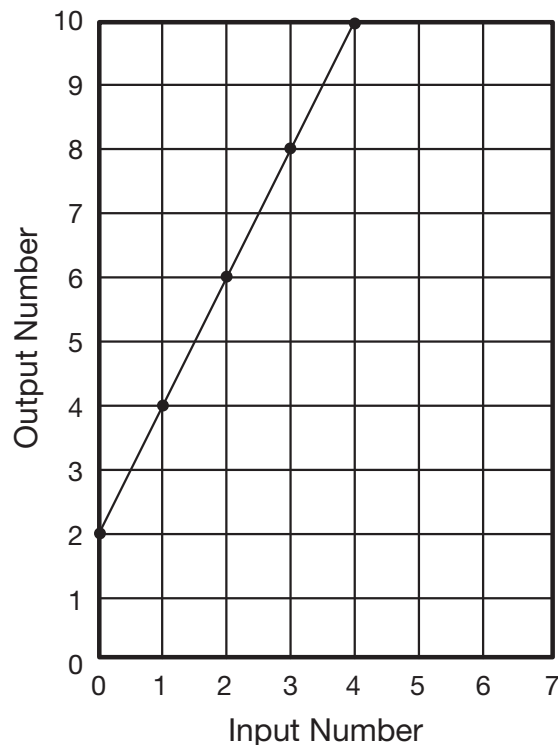
A. Complete their function tables for the numbers 0–5.

Rule: Double Plus Two		
Input	Output	Ordered Pairs (Input, Output)
0		
1		
2		
3	8	(3, 8)
4		
5		

Rule: Add 1, Then Double		
Input	Output	Ordered Pairs (Input, Output)
0		
1		
2	6	(2, 6)
3		
4		
5		

B. What do you notice about the patterns in Maya's and Roberto's function tables?

3. Linda made a graph from her function table and decided her rule matched Maya's and Roberto's in Question 2. Do you agree? Why or why not?



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- 4.** Nila’s sandwich had a mass of 153 grams. She took one bite and then the mass of her sandwich was 128 grams.
- A.** If each of Nila’s bites has the same mass, what is the mass of two bites? Show or tell how you know.

**B.** What is the mass of three bites?

**C.** Nila made a table to predict the mass of the sandwich after each bite. Complete the table.

**Nila’s Sandwich**

<b><i>N</i></b> Number of Bites	<b><i>M</i></b> Mass of Sandwich (grams)
0	153
1	128
2	
3	
4	
5	

**D.** Assuming that each of her bites has the same mass, predict the Number of Bites (*N*) it will take Nila to eat her whole sandwich. Show or tell how you made your prediction.

**E.** Which is a rule to find the mass of Nila’s sandwich (*M*) if you know the number of bites (*N*) taken? Circle the rule.

$$M = 128 - 25 \times N$$

$$M = 153 - 25 \times N$$

$$M = 153 - N$$

5. John's sandwich had a mass of 189 grams. After he took one bite, the mass was 159 grams.
- A. John made a table to predict the mass of the sandwich after each bite. He used the same mass for each bite. Complete the table.

**John's Sandwich**

<i>N</i> Number of Bites	<i>M</i> Mass of Sandwich (grams)
0	189
1	159
2	
3	
4	
5	



- B. Assuming that each of his bites has the same mass, predict the Number of Bites (*N*) it will take John to eat his whole sandwich. Show or tell how you made your prediction.
- C. Write a rule to find the mass of John's sandwich (*M*) if you know the number of bites (*N*).
6. Use your answers to Questions 4 and 5 to answer these questions:
- A. Who has a bigger bite size, Nila or John?
- B. How are Nila and John's rules alike?
- C. How are they different?

**7.** Michael made a table to predict the mass of his sandwich after each bite. He used the same mass for each bite.

**A.** What is the mass of one bite?

**B.** Predict how many bites Michael can take altogether until his sandwich is gone.

**C.** Who has the smallest bite size: Nila, John, or Michael?

**Michael's Sandwich**

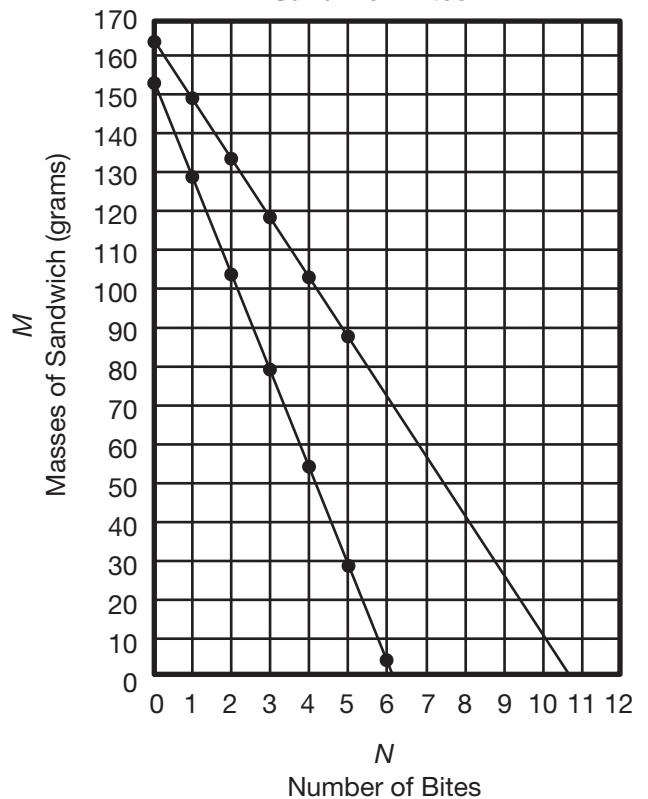
<i>N</i> Number of Bites	<i>M</i> Mass of Sandwich (grams)	Ordered Pairs ( <i>N</i> , <i>M</i> )
0	163	(0, 163)
1	148	(1, 148)
2	133	(2, 133)
3	118	(3, 118)
4	103	(4, 103)
5	88	(5, 88)

**8. A.** Nila and Michael graphed the changes in the mass of their sandwich. Compare the line graphs to the function tables in Questions 4 and 7. Write "Nila" on Nila's line and "Michael" on Michael's line.

**B.** Compare Nila's and Michael's lines on the graph. What is different about them?

**C.** Grace has a 120-gram sandwich and takes bigger bites than Nila. What might a graph look like for her sandwich? Sketch a line on the graph at the right. Write "Grace" on her line.

**Sandwich Bites**





### Check-In: Questions 9–10

9. Professor Peabody is planning a 7-day trip. He decides to leave 40 grams of food for his hamster, named Ham. He started this data table.

A. Complete the table.

B. Complete Ham’s food graph below using Professor Peabody’s data. If the points form a line, draw a best-fit line.

Ham’s Food

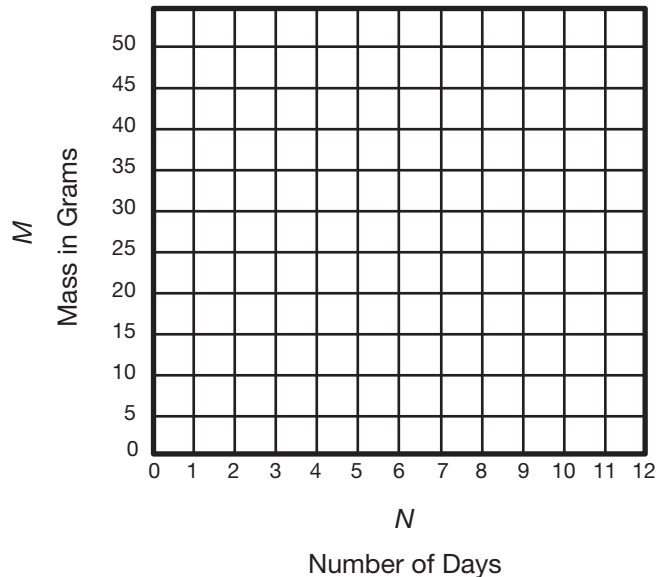
$N$ Number of Days	$M$ Mass (Grams)	Ordered Pairs ( $N, M$ )
0	40	(0, 40)
1	35	(1, 35)
2	30	(2, 30)
3	25	(3, 25)
4		
5		
6		
7		

10. Use the table or graph to answer these questions.

A. How many grams of food does the hamster eat each day?

B. Write a rule that will tell Professor Peabody the Mass in Grams ( $M$ ) of the food if he knows the Number of Days ( $N$ ). You may use words or number sentences.

Ham’s Food



C. Is 40 grams enough food for 7 days? Show or tell how you know.