

P1

Joe and David were studying birds. They counted the number of eggs in different nests and recorded the data in this table.

Nest	# of eggs
1	3
2	6
3	9
4	12
5	15

The boys noticed a pattern that could predict how many eggs would be in any number of nests.

A. How many eggs will be in the *sixth* nest?

B. Write a rule to find out how many eggs would be in the *tenth* nest.

P2

Sheila and Sam counted the number of butterflies they saw during four days. Their data is shown in the table below.

Day	1	2	3	4
Number of butterflies	3	5	7	9

If the pattern continues, how many butterflies will they see on Day 5?

What is the rule that could predict how many butterflies will be seen on the *tenth* day?

Explain your reasoning.

P3

The table below shows the cost of lollipops at Brian's Candy Store.

Number of Lollipops	Cost
3	\$.15
4	\$.20
5	\$.25
6	\$.30
7	\$.35

A. What is the cost of 9 lollipops at Brian's Candy Store?
Show your work.

B. Write a rule to find out the cost of 17 lollipops at Brian's Candy Store.

P4

The table below shows the number of worms Michael and Alex found in four days.

Day	1	2	3	4
Number of worms found	15	30	45	60

If this pattern continues, how many worms will Michael and Alex find on Day 8?

Write a rule to figure out how many worms they will find on Day 8.

P5

Tammy is decorating tables with flowers. She used the chart below to keep track of how many flowers she needs.

Table Number	1	2	3	4	5	6
Number of vases	3	6	9	12	15	?

Write a rule that Tammy could use to figure out the number of flowers she needs for six tables.

P6

The table below shows the number of pencils Mary gave to the students in her class.

People in Mary's Class	1	2	3	4	5	14
Total Number of pencils given	7	14	21	28	35	?

Write a rule that Mary could use to figure out how many pencils she gave to the 14 students in her class.

P7

The Smith family needed to drive 420 miles to visit their relatives. Billy started the chart below to keep track of how much further they needed to travel. How many hours will the trip take if they continue to travel at this rate?

Show your work.

Time (Hours)	1	2	3
Distance Traveled (Miles)	60	120	180

P8

Look at the function machine below.

In	60	45	100	55	80	35
Out	12	9	20			

Fill in the blanks in the function machine.

Write the rule that works for the function machine.

P9

Look at the function machine below.

In	Out
90	6
135	9
45	3
75	
150	

Fill in the blanks in the function machine.

Write the rule that works for the function machine.

P10

Look at the function machine below.

In	500	125	225	300	675
Out	20	5	9		

Fill in the blanks in the function machine.

Write the rule that works for the function machine.

P11

Sally made a table to find out how many juice boxes she would have if she bought 6 juice box packages. Complete the table to find the answer.

Juice Box Packages	Juice boxes
1	4
2	8

Write the rule that tells how many juice boxes Sally will have if she buys 10 packages.

P12

Look at the function machine below.

In	1	2	3	4	5	6
Out	4	8		16		24

A) Fill in the blanks in the function machine.

B) Write the rule that works for the function machine.

C) Joe noticed that all of the numbers in the “Out” row were even.
Explain why this is true.

P13

Complete the table below following the rules listed in the column headings.

Add 2	Add 4
2	
4	8
6	12

A) What do you notice about how the numbers in the two columns connect to each other?

B) Explain why this is true.

P14

Complete the table below following the rules listed in the column headings.

Add 5	Add 10
5	
10	20
15	30

What do you notice about how the numbers in the two columns connect to each other?

Explain why this is true.

P15

Jake was asked to explain the rule for the following function machine. He noticed that the “out” column had one more zero than the “in” column on every row.

Jake says that the rule is to add 0 to the value in the IN column to get the answer in the OUT column.

IN	OUT
1	10
10	100
100	1000
1000	10000
10000	100000

Is Jake correct? Why or why not?

Explain your thinking.

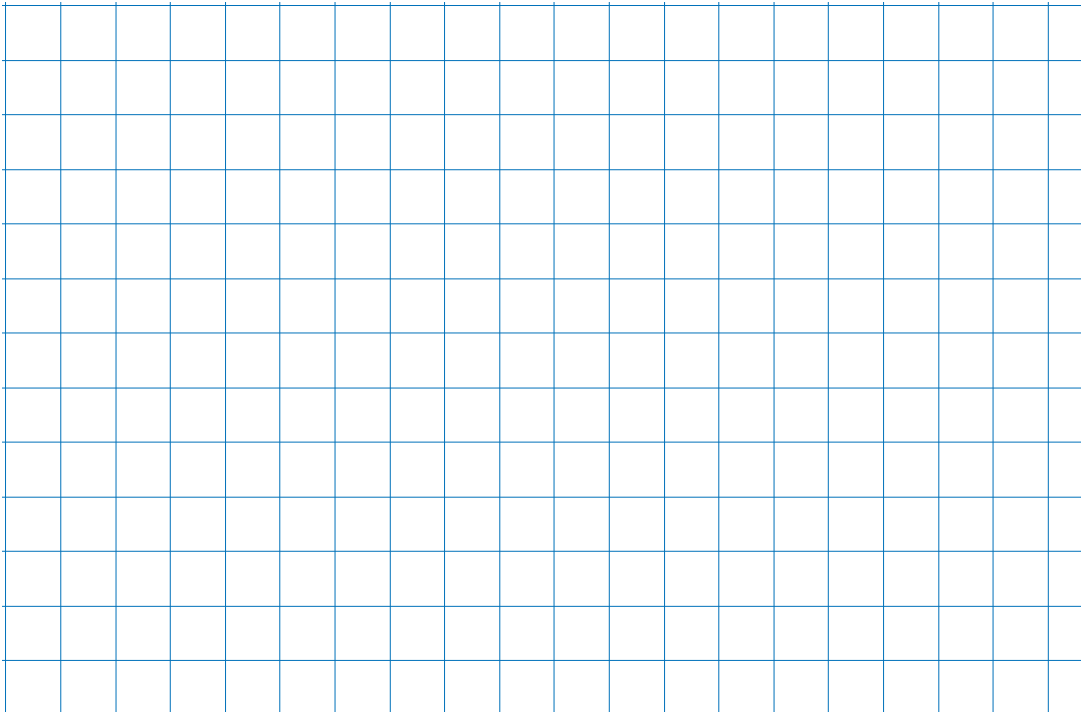
P16

Ms. Jackson's class made a table with the price of cans of soup to determine how much 32 cans cost.

No of Cans	Can A Price	Can B Price
1	\$0.20	\$0.25
2	\$0.40	\$0.50
4		
8		
16		
32		

Complete the table.

Create a graph that represents the data from the table.



P17 (Pilot)

Look at these two rules. Follow the rules to complete the tables below.

Multiply by 2

In	Out
1	2
2	
3	
4	
5	
6	
7	
8	
9	
10	

Multiply by 3

In	Out
1	3
2	
3	
4	
5	
6	
7	
8	
9	
10	

Chris made two observations about the pattern based on the rules.

- 1) When you multiply the numbers 1 to 10 by an even number you always get an even number.
- 2) When you multiply the numbers 1 to 10 by an odd number you get an odd number.

Use specific examples to prove or disprove Chris's observations.