Section A: Practice Problems

1. **Pre-unit**

   Here is a list of the first ten multiples of 5:

   5, 10, 15, 20, 25, 30, 35, 40, 45, 50

   a. Circle the multiples of 10 in the list.

   b. What do you notice about where the multiples of 10 are on the list?

   c. Why do you think that is?

2. **Pre-unit**

   Find the value of each expression.

   a. 14×7

   b. 13×6

   c. 23×4

   d. $85 \div 5$

3. **Pre-unit**

There are 418 students at Jada's school. There are 135 fewer students at Noah's school. How many students are there at Jada's and Noah's schools together? Explain or show your reasoning.

4. **Pre-unit**

a. What is the value of the digit 6 in each of the numbers?

i. 165

ii. 18,622

iii. 675,219

b. Complete this statement so that it is true:

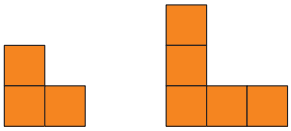
The value of the 6 in 675,219 is _____ times that of the 6 in 165.

5. **Pre-unit**

Find the value of each sum and difference.

$$\begin{array}{r} 15,826 \\ +\ 44,371 \\ \hline \end{array} \qquad \begin{array}{r} 33,517 \\ -\ 16,322 \\ \hline \end{array}$$

6. a. Mai follows a rule to build a pattern of square blocks. What might the next 2 shapes in Mai's pattern look like? Sketch the shapes or describe them.



b. Will Mai's pattern ever use 20 squares? Explain your reasoning.

(From Unit 6, Lesson 1.)

7. Han types the letters a, s, d, f and then repeats them in that order, over and over.

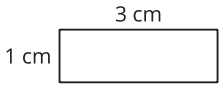
a. What is the 5th letter Diego will type? What about the 10th? The 20th?

b. If Diego numbers the letters he types, starting with 1 for the first a, what numbers will go with the first 6 f's he types?

c. What do you notice about the numbers for the f's?

(From Unit 6, Lesson 2.)

8. Here is the first rectangle in a pattern. For each step in a pattern of rectangles, the short side stays the same and the long side grows by 2 centimeters.



   a. Draw the next 4 steps in the rectangle pattern. Include the length and width of each rectangle.

   b. Can the perimeter of the rectangle, in centimeters, be an even number? Explain your reasoning.

   c. Can the area of the rectangle, in square centimeters, be an even number? Explain your reasoning.

(From Unit 6, Lesson 3.)

9. a. Make a list of the first ten multiples of 8.

   b. What pattern do you see in the digits in the ones place? How are the digits changing?

   c. Why do you think it is changing that way?

(From Unit 6, Lesson 4.)

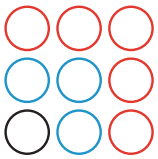
10. **Exploration**

    a. Make a list of the multiples of 2, 3, 4, 5, 6, 7, 8, 9, 10. Stop when you get a multiple of 10. For example, for 2, the list is 2, 4, 6, 8, 10.

    b. What do you notice about your lists? Make some observations.

11. **Exploration**

Tyler draws this picture and writes the equation $1 + 3 + 5 = 9$.



a. How do you think the equation relates to the picture?

b. Tyler keeps drawing circles to make larger squares. How many new circles does he need to draw to make a 4-by-4 square, and then a 5-by-5 square?

c. What pattern do you notice in the number of circles Tyler adds each time?

d. Why do you think the number of circles is increasing that way?

12. **Exploration**

A growing pattern of squares that makes rectangles is shown here.

step 1 step 2 step 3

a. Find the area and perimeter of the rectangles in steps 2 and 3.

step	number of squares	area of rectangle (square units)	perimeter of rectangle (units)
1	2	2	6
2			
3			

b. Consider patterns you see in the chart. Extend the values in each column as if the pattern continued in steps 4 and 5.

c. Draw the next two diagrams (for steps 4 and 5). Were your predictions for the area and perimeter of each rectangle correct?

d. How would you describe this pattern to a classmate?

13. **Exploration**

Mai and Tyler are each making their own pattern.

Some of their pattern symbols are the same, some are different. The table shows the first six symbols in Mai's pattern and the first four in Tyler's pattern.

Mai's pattern	@	#	$	@	#	$		
Tyler's pattern	~	@	~	@				

a. What are the next two symbols in Tyler's pattern? Explain your reasoning.

b. At what step do you think Mai and Tyler will next both draw the same symbol at the same time? Explain or show how you know.