

# Mid-Chapter Review

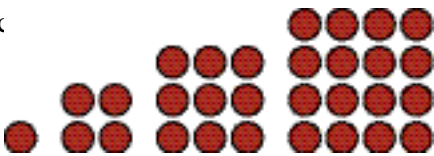


## Frequently Asked Questions

**Q: What is a sequence?**

**A:** A sequence is a list of items that are in a logical order or follow a pattern. For example, the terms in the sequence 9, 18, 27, 36, 45, ... are the multiples of 9.

Also, pictures can show a sequence. For example, this picture shows the sequence 1, 4, 9, 16, ... .



**Q: How do you use a table of values to analyze a pattern or sequence?**

**A:** A table of values shows what happens at each stage in a pattern. The term numbers are listed in the first column. The term values are listed in the last column. Sometimes there is a middle column with pictures or numbers to illustrate the pattern.

Term number	Picture	Term value
1		3
2		6
3		9
4		12
5		15

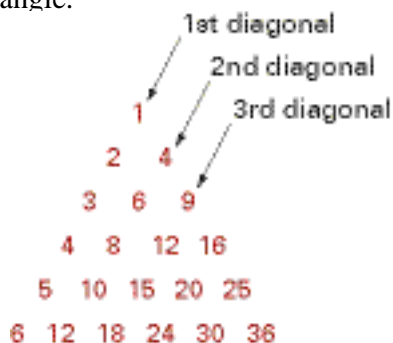
+ 3  
+ 3  
+ 3  
+ 3

There are different ways of determining a rule to calculate the value of a term in a sequence.

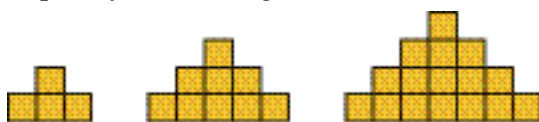
- One way uses the previous terms in the sequence. Look at the numbers in the last column of the table of values above. There is an addition pattern of + 3 for each new value, beginning at 3.
- Another way uses the term's position in the sequence. Look for a relationship between the term number and the term value. In the sequence above, the term value is calculated by multiplying the term number by 3.

## Practice Questions

- (4.1) 1. Use mathematical language to describe three different patterns in the following triangle.



- (4.2) 2. The pattern rule for a sequence is “Start at 8, double each number, and add 2.” Write the first five numbers in the sequence.
- (4.3) 3. Determine a pattern rule to predict the number of squares you would need to build the 6th figure in this pattern. Explain your thinking.



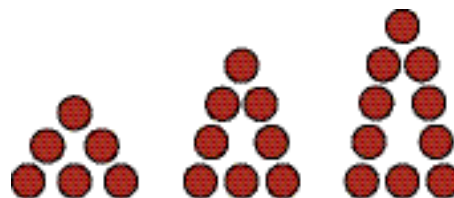
- (4.3) 4. Determine the number of toothpicks in the 5th figure in this sequence.



- (4.3) 5. a) Describe the patterns in this table of values.
- b) Copy and complete the table.

Term number	Term value
1	3
2	7
3	11
4	
5	
6	

6. Use a table of values to determine the number of counters in the 9th term in this sequence. (4.3)



7. a) Draw the 4th figure in this pattern. (4.3)



- b) Use a table of values to determine the number of toothpicks in the 7th figure.
8. a) Use a table of values to represent the sequence 2, 7, 12, 17, ... (4.3)
- b) Write a rule that tells how to calculate the value of a term using the terms before it.
- c) Write a rule that tells how to calculate the value of a term using the term number.
- d) Calculate the value of the 10th term in the sequence.
9. To raise funds for the music department, a class decides to sell frozen cookie dough. The class makes a profit of \$2 on each container. The class sells 5 containers on the first day, 8 on the second day, and 11 on the third day. This pattern continues for 10 days. What is the difference between the profit for the 1st day and the profit for the 10th day? (4.3)