

Unit 1 – Block 2

1. The cost of producing widgets depends on the fixed costs (i.e., rent, insurance, notes) and the variable costs (i.e., labor, utility, materials). The table lists the amount of time of production and the total costs of this production. Fill in the missing cells. (Assume that total cost changes at a constant rate.)

Hours of Production	Total Cost
0	\$470
1	\$550
2	\$630
3	
4	
5	
h_n	

2. What kind of function can be used to model the data in the table? Justify your response.

3. What kind of sequence is generated by the altitude? How do you know?

4. Write a recursive definition for the sequence shown in the table.

5. Write a general formula for h_n in terms of n , and use the general formula to find the 12th term.

6. Identify if the patterns are arithmetic sequences. Give evidence for your conclusion.

Pattern	Arithmetic sequence? Yes or No	Evidence
46, 40, 34, 28, ...		
3, 6, 12, 24, 48, ...		

7. Consider the sequence 18, 21, 24, 27, ...

a. Write a recursive definition for this sequence.

b. Write a general formula for this sequence.

c. The first 9 terms in this sequence are listed in the table. Fill in the blanks.

Term	1	2	3	4	5	6	7	8	9
Value	18	21	24	27					

d. Find the sum of the value of the first nine terms. Justify your answer.