Name: Key

Date:

UNIT 5

LESSON 1

Lets Think! What would come next?

Do Now: Find the pattern and fill in the missing numbers.

a) 1,3,5,7 9, 11, 13

b) 4,8,12,16 20, 24, 28

AIM: ARITHMETIC SEQUENCE

A Sequence is an ordered set of numbers. Each number in the sequence is called a term.

1. Identify a pattern in the sequence and then find the missing terms:

3, 6, 9, 12, 15, 18, 21, 24, 27

Rule: Add 3 to get the next term.

2. Identify a pattern in the sequence and then find the missing terms :

48, 42, 36, 30, 24, 18, 12

Rule: Subtract 6 to get the next term.

3. The table below shows Eva's monthly DVD rental from Netflix.

a) How many DVD's per month does Eva rent from Netflix?

3

b) After five months how many DVD's did Eva rent?

15

c) Write the table as a sequence.

3,6,9,12,...

Eva's DVDs	
Month	DVDs
1	3
2	6
3	9
4	12

4. As shown in the table, the monthly rent of an apartment depends on the number of bedrooms.

a) What is the cost to rent each additional bedroom?

$75

b) What will be the cost of a four bedroom apartment?

775

c) Write the table as a sequence.

550, 625, 700, 775,...

Bedrooms	Rent
1	$550
2	$625
3	$700

In an arithmetic sequence, the amount by which the terms change each time is called the common difference. The common difference is represented by d.

$$\mathbf{d = a_2 - a_1}$$

* In an arithmetic sequence, you are either adding or Subtracting to find the next term!

* $d = a_2 - a_1$ *

5. Consider a sequence that follows **4, 7, 10, 13, 16, ...**

a. What is the first term?

4

b. What is the common difference?

$7-4=3$
$10-7=3$
$16-13=3$

Term Number "n"	Term
a_1	4
a_2	7
a_3	10
a_4	13
a_5	16

6. Consider a sequence that follows **−7, −9, −11, −13**

a. What is the first term?

−7

b. What is the common difference?

$-9-(-7)=-2$

Term Number "n"	Term
a_1	−7
a_2	−9
a_3	−11
a_4	−13

7. Consider a sequence that follows **3, 7, 11, 15, 19 ...**

a) What is the first term?

3

b) What is the common difference?

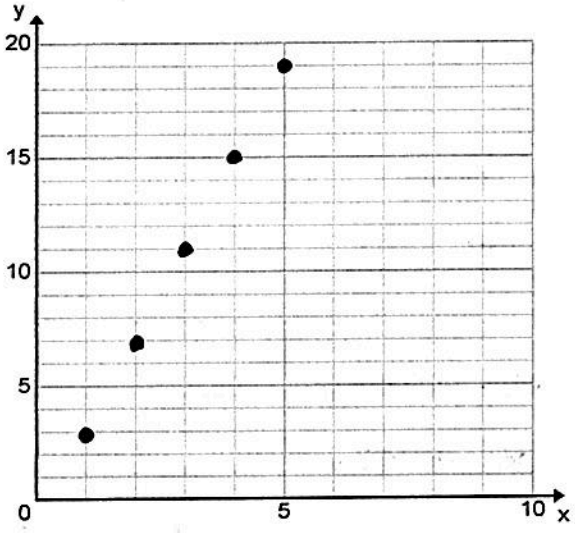
$7-3=4$

c) Fill in table.

X Y

Term Number "n"	Term
a_1	3
a_2	7
a_3	11
a_4	15
a_5	19

d) Graph the table



What would the equation of this graph be?.... **Hint lets use our calculator!**

*** Arithmetic Sequences follow a** linear **pattern!**

PRACTICE PROBLEMS

8. Is the following sequence *arithmetic:* **2, 5, 7, 15, 16, 20...** Explain your answer.

+3 +2 +8 +1 +4

No, there is no common difference.

9. Consider a sequence that follows: **18, 14, 10, 6, 2.....**

a) What is the first term?

18

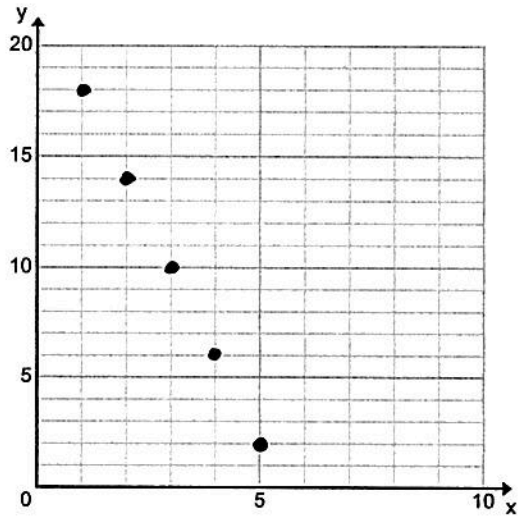
b) What is the common difference?

14 − 18 = −4

c) Fill in table.

x: Term Number "n"	y: Term
a_1	18
a_2	14
a_3	10
a_4	6
a_5	2

d) Graph the table



10. Consider a sequence that follows: **3, 9, 15, 21.....**

a) What is the first term?

3

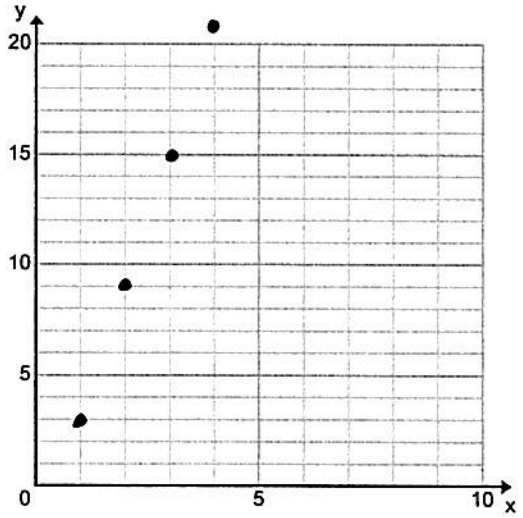
b) What is the common difference?

9 − 3 = 6

c) Fill in table.

x: Term Number	y: Term
a_1	3
a_2	9
a_3	15
a_4	21

d) Graph the table



11. Using your calculator, go back and find the equation of the line for #9 and #10!

#9 $y = -4x + 22$

#10 $y = 6x - 3$