MALAPPURAM EDUCATIONAL DISTRICT

EM_1.02	**MATHEMATICS**	Class - X
Chapter–1	**ARITHMETIC SEQUENCES**	

◆ **Arithmetic Sequence:-** Sequence having common difference

◆ **Common Difference (d)**:: - The difference between a term and the term just before it.

◆ If $x_1, x_2, x_3, x_4, ...$ are terms of an arithmetic sequence, then $d= x_2-x_1= x_3-x_2 = x_4-x_3=$ **.............**

Examples		
	Sequence	Common Difference (d)
(1)	1, 3, 5, 7,.............	2
(2)	100, 97, 94, 93,.........	-3
(3)	1, 3/2, 2, 5/2, ...	1/2
(4)	10, 7.5, 5, 2.5, ...	-2.5
(5)	10√2, 15√2, 20√2, 25√2,.......	5√2

◆ **Term difference and Position difference**

If $x_1, x_2, x_3, x_4, ...$are in arithmetic sequence then, $x_2-x_1=1d$, $x_5-x_3 =2d$, $x_{10}-x_7=3d$, $x_{100}-x_{20}=80d$

ie, The difference between any two terms of an arithmetic sequence is the product of the difference of positions and the common difference.

Or

In an arithmetic sequence, term difference is the multiple of common difference.

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5

1 Check whether the following sequences are arithmetic sequence or not. Why? If yes, write down the common difference.

   a) Sequence of multiples of 3

   b) Sequence of reciprocals of odd numbers

   c) Sequence of natural numbers multiplied by 2 and adding one

   d) Sequence of powers of 10

2 In the figure circles with radii 1cm, 2cm, 3cm, ... are drawn

a) Write down the sequence of diameters of circles

b) Find the sequence of circumference of circles

c) What is the sequence of areas of the circles

d) Check whether the above sequences are arithmetic sequences or not? Why?
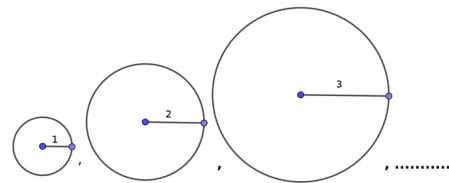
3 Find the missing terms in the following arithmetic sequences

a) 100, 94, __ , __ , ...

b) 10, __ , 24, __ , ...

c) 4, __ , __ , 37, ...

d) __ , __ , 1/2, 3/2, ...

4 In the following table, two different terms of some arithmetic sequences are given in the first column. Write the sequences in the second column and the terms required in the third column.

	Terms	Sequence	Term
a)	$x_3=21$, $x_7=37$	....	$x_{27}=$..........
b)	$x_5=50$, $x_{13}=34$	....	$x_{30}=$..........
c)	$x_2=5$, $x_6=6$	....	$x_{10}=$..........
d)	$x_{10}=15$, $x_{15}=10$	....	$x_{25}=$..........

5 In the following table, some arithmetic sequences are given in the first column and some numbers are given in the second column. Check whether the given numbers are the terms of the sequence or not.

	Terms	Numbers
a)	5,8,11,.......	101, 1001
b)	9, 20, 31, 42, ...	171, 117
c)	6, 10, 14, 18, ...	50, 500
d)	1, 1¾, 2½ 3¼,...........	6, 7