ARITHMETIC SEQUENCES

1 Check whether the following sequences are arithmetic sequence or not

a Sequence of Natural numbers
b Sequence of Odd numbers
c Sequence of Perfect square numbers
d Sequence of Prime numbers
e Sequence of Multiples of 5
f Sequence of Natural numbers having 3 in the unit place
g Sequence of Natural numbers which leave reminder 4 on division by 7
h 1, 2, 4, 7, 11, ...
i Sequence of Total number of diagonals of regular polygons
j Sequence of Sum of interior angles of regular poligons

2 Calculate the common difference of the following arithmetic sequence

a 7 , 15 , 23 , 31 , ...
b 18 , 31 , 44 , 57 , ...
c 37 , 30 , 23 , 16 , ...
d - 25 , -29 , -33 , -37 , ...
e -51 , -40 , -29 , -18 , ...
f -7 , 2 , 11 , 20 , ...
g 4 , -6 , -16 , -26 , ...
h 18.3 , 22 , 25.7 , 29.4 , ...
i $5\sqrt{3}$, $9\sqrt{3}$, $13\sqrt{3}$, $17\sqrt{3}$, ...
j 3x+10y , 5x+8y , 7x+6y , ...

3 Fill up the table given below

No	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}
1	26	32								
2					37	41				
3								23	29	
4			14	22						
5	13		23							
6				31			40			
7						42				82
8		12						54		
9			8							29
10	-5									13

4 The difference of first and eighth terms of an arithmetic sequence is 35 . What is the difference of its 4^{th} term and 10^{th} term ?

5 The difference of seventh and thirteenth terms of an arithmetic sequence is 48 . What is the difference of its 11^{th} term and 19^{th} term ?

6 Complete the following table

No	d	X_5	X_8	X_{13}	X_{17}	X_{23}	X_{30}	X_{32}	X_{40}
1		40	49						
2				52	72				
3						34	55		
4								60	108
5		12		68					

7 What is the 25^{th} term of the sequence 7 , 13 , 19 , ...

8 What is the 17^{th} term of the sequence 15 , 23 , 31 , ... Is 239 a term of this sequence ?

9 Consider the arithmetic sequence 11 , 16 , 21 , ...

a What is it's 15^{th} term ?

B Is difference of any two terms be 100 ?

c is 100 a term of this sequence ?

10 Is 215 a term of the arithmetic sequence 17 , 26 , 35 , ...

11 If 9^{th} term of an arithmetic sequence is 23 find

a Sum of first 17 terms

b Sum of 10^{th} term and 8^{th} term

c Sum of 5^{th} term and 13^{th} term

d First term , if 17^{th} term is 33

12 If sum of 25 terms of an arithmetic sequence is 400 , find

a 13^{th} term

b Sum of 11^{th} term and 15^{th} term

c Sum of 20^{th} term and 6^{th} term

d 7^{th} term , if 19^{th} term is 45

13 If 7^{th} term of an arithmetic sequence is 20 , find

a Sum of first 13 terms

b Sum of 10^{th} term and 4^{th} term

c Sum of 6^{th} term and 8^{th} term

d First term , if 13^{th} term is 28

14 If sum of 9 terms of an arithmetic sequence is 144 and sum of 15 terms of this sequence is 465 . Find

a 5^{th} term

b 8^{th} term

c Common difference

d 20^{th} term

15 If sum of 11 terms of an arithmetic sequence is 143 and sum of 21 terms of this sequence is 903 . Find

a 6^{th} term

b 11^{th} term

c Common difference

d 25^{th} term

16 The sum of first 5 terms of an arithmetic sequence is 200 and sum first 10 terms the sequence is 475 . find

a 3^{rd} term

b 8^{th} term

c Common difference

17 The sum of 11^{th} and 17^{th} terms of an arithmetic sequence is 70 .What is it's 14^{th} term ?

18 The sum of 16^{th} and 24^{th} terms of an arithmetic sequence is 100 .What is it's20^{th}term ?

19 The sum of 7^{th} and 8^{th} terms of an arithmetic sequence is 50 . Find

- **a Sum of 6^{th} term and 9^{th} term**
- **b Sum of 3^{rd} term and 12^{th} term**
- **c First term if 14^{th} term is 40**
- **d Sum of first 14 terms of the sequence**

20 The sum of 10^{th} and 15^{th} terms of an arithmetic sequence is 100 . Find

- **a Sum of 6^{th} term and 19^{th} term b Sum of 13^{th} term and 12^{th} term**
- **c First term if 24^{th} term is 92**
- **d Sum of first 24 terms of the sequence**

21 The sum of 20 terms of an arithmetic sequence is 250 . What is the sum of

- **a 10^{th} term and 11^{th} term**
- **b 15^{th} term and 6^{th} term**
- **c 4^{th} term and 17^{th} term**

22 Write 3 arithmetic sequences with sum of the first 5 terms as 80 .

23 Write 3 arithmetic sequences with sum of the first 9 terms as 108

24 Write the first three terms of the arithmetic sequence whose first term is 35 and sum of first three terms is 123

25 The sum of 9 terms of an arithmetic sequence is 180 and it's 9^{th} term is 44 . Find

- **a 5^{th} term**
- **b Common difference**
- **c Sum of first 17 terms**
- **d Sum of 3^{rd} term and 7^{th} term**
- **e 20^{th} term**

26 The sum of 7 terms of an arithmetic sequence is 175 and it's 10^{th} term is 49 . Find

- **a 4^{th} term**
- **b Common difference**
- **c Sum of first 19 terms**
- **d Sum of 3^{rd} term and 17^{th} term**
- **e 15^{th} term**

27 The sum of first 9 terms of an arithmetic sequence is 270 and sum of next 9 terms is 513 . Find

- **a 5^{th} term**
- **b 14^{th} term**
- **c Common difference**
- **d Sum of 18 terms**
- **e Sum of 9^{th} term and 10^{th} term**
- **f Sum of 6^{th} term and 13^{th} term**