WORK SHEET

Q. Consider an arithmetic sequence 5 , 8 , 11 ....

 a) What is its common difference ?

 b) What is its 20th term ?

 c) Find the sum of first 20 terms of this sequence   ?

Answer .

$$a)\ d = 8 - 5 = 3$$

$$b)\ x_{20} = f + 19 \times d = 5 + 19 \times 3 = 5 + 57 = 62$$

$$c)\ S_{20} = \frac{20}{2}\,(x_1 + x_{20}) = \frac{20}{2}\,(5 + 62) = 10 \times 67 = 670$$

Q. Consider an arithmetic sequence 6 , 10 , 14 ....

 a) What is its common difference ?

 b) What is its algebraic form ?

 c) Find the position of 122 in this sequence   ?

 d) Calculate the sum   6 + 10 + 14 + ... + 122

SARATH .A .S , HST ,GHS ANCHACHAVADI

<u>Answer .</u>

a) $d = 10 - 6 = 4$

b) $x_n = dn + f - d = 4 \times n + 6 - 4 = 4n + 2$

c) Take $x_n = 122$

$4n + 2 = 122$

$4n = 122 - 2 = 120$ ===> $n = \dfrac{120}{4} = 30$

d) $6 + 4 + 10 + \text{.......} + 122 = \dfrac{n}{2}(x_1 + x_n) = \dfrac{30}{2}(6 + 122)$

$= 15 \times 128 = 1920$

<u>Solve the following questions</u>

1). *Consider an arithmetic sequence 6 , 11, 16 ....*

 a) *What is its common difference ?*

 b) *What is its 21st term ?*

 c) *Find the sum of first 21 terms of this sequence ?*

2). *Consider an arithmetic sequence 7 , 13 , 19 ....*

 a) *What is its common difference ?*

 b) *What is its algebraic form ?*

 c) *Find the position of 91 in this sequence ?*

 d) *Calculate the sum 7 + 13 + 19 + ... + 91*

3). *Consider the sequence of three digit numbers which leave a remainder 1 on divisible by 3 .*

 a) *What is its common difference ?*

 b) *Which is the smallest number in this sequence ?*

 c) *How many three digit numbers are there ,which leave a remainder 1 on divisible by 3?*

 d) *What is the sum of such numbers ?*

4). Look at the number pattern given below

1

2   3

4   5   6

7   8   9   10

....

....

a) Write the next two more line of this pattern ?

b) How many numbers are there in the 10th line?

c) What is the last number in the 9th line ?

d) What is the first number in the 10th line ?

e) What is the last number in the 10th line ?

f) What is the sum of the numbers in the 10th line ?

5). The sum of 10th and 11th terms of an arithmetic sequence is 65 .

a) What is the sum of its first and 20th terms ?

b) What is the sum of first 20 terms of this sequence ?

c) If the 4th term of this sequence is 13 , what is its 17th term ?

d) What is the common difference of this sequence ?

e) What is the algebraic form of this sequence ?