## Notes of Online class

- 1) Answer the following questions
  - a) Find the sum of first  $10 \ {\rm odd} \ {\rm numbers}$
  - b) Find the sum of first 25 odd numbers
  - c) How many odd numbers from 1 makes the sum 1225?
  - d)  $1 + 3 + 5 + 7 \dots + 2n 1$  is in between 900 and 1000. What is *n*?

2) Have you heard of triangular numbers? The sequence of triangular numbers is given below

$$1, 3, 6, 10, 15, 21 \cdots$$

n th term of this sequence can be obtained from the pattern

$$1 = 1$$
  

$$3 = 1 + 2$$
  

$$6 = 1 + 2 + 3$$
  

$$10 = 1 + 2 + 3 + 4$$
  

$$15 = 1 + 2 + 3 + 4 + 5$$

- a) What is the 10th triangular number?
- b) Write the algebraic form of the sequence of triangular numbers
- c) Which is the largest two digit triangular number?
- d) Find the  $50\ {\rm th}$  triangular number

3) Look at the pattern given below

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31

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- a) Write the sequence of number of numbers in each line
- b) Write the algebraic form of this sequence
- c) How many numbers are there in 20 th line ?
- d) Which number comes in the right end of 20 th line ?
- d) Which number comes in the left end of 20 th line ?
- e) How many numbers are needed to make  $20 \ {\rm lines} \ {\rm of} \ {\rm this} \ {\rm pattern.}$
- 4) Look at the pattern given below

1 2 3 4 5 6 7 8 9

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- a) Write the sequence of number of numbers in each line
- b) Write the algebraic form of this sequence
- c) How many numbers are there in  $20\ {\rm th}$  line ?
- d) Which number comes in the right end of  $20\ {\rm th}$  line ?
- d) Which number comes in the left end of  $20\ {\rm th}$  line ?
- e) Calculate the sum of all numbers upto the end of  $20\ {\rm th}$  line

Answers and Explanation	
1)	a) $s_n = n^2, s_{10} = 10^2 = 100$
	b) $s_n = n^2, s_{25} = 25^2 = 625$
	c) Sum of the first $n$ odd numbers $=n^2.$ $n=\sqrt{1225}=35$
	d) Perfect square in between $900$ and $1000$ is $961$ ആണ്. $n^2=961, n=31$
2)	a) $T_{10} = 1 + 2 + 3 \dots + 10 = (10 + 1)\frac{10}{2} = 55$
	b) $(n+1)  imes \frac{n}{2}$
	c) $T_{13} = (13+1) \times \frac{13}{2} = 91$
	d) $T_{50} = (50+1) \times \frac{50}{2} = 1275$ .
3)	a) $1, 3, 5, 7 \cdots$
	b) $x_n = dn + (f - d) = 2n - 1$
	c) $x_{20} = 2 \times 20 - 1 = 39$
	d) Sequance of numbers in the right end : $1, 7, 17, 31 \cdots$ $x_{-} - 2n^{2} - 1$ $x_{00} - 2 \times 20^{2} - 1 - 799$
	Number at the end of 20 th line = 799
	e) $2 \times 19^2 - 1 + 2 = 723$ .
	f) $20^2 = 400$ numbers are needed
4)	a) $1, 3, 5, 7 \cdots$
	b) $x_n = 2n - 1$
	c) 39
	d) $20^2 = 400$
	(Sequence of numbers in the right end $1, 4, 9, 16 \cdots$ )
	e) $19^2 + 1 = 362$
	f) Sum the numbers $1, 2, 3, 4 \cdots 400 = (400 + 1) \times \frac{400}{2} = 80200$

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