The City School

 North Nazimabad Boys Campus

# Subject: Mathematics

# Topic: Number Sequence + Direct and Inverse Variation +Algeriac manipulation and formulae

# Teacher: Ms Sheema Aftab

# Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class 9/Sec: \_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_ Max Marks[20]

Q1: Look at this pattern $1^{2 }- 0^{2 }=1$

 $2^{2 }- 1^{2 }=3$

 $3^{2 } – 2^{2} =5$

 $ 4^{2 }- 3^{2 }=7$

1. Write down
2. The 8th line of the pattern. (1)
3. The 13th line of the pattern. (2)
4. The *n*th line of the pattern. (2)
5. Use the pattern to find
6. $340^{2 }- 339^{2}$ (2)
7. The integers x and y such that, $x^{2}- y^{2} =701$ (2)

Q2: Factorize completely

1. $9a- 12a^{2}$ (1)
2. $4y^{2}- 1$ (2)
3. $a^{2}-7a^{}+ 12$ (2)
4. $a^{2}-5a^{}+ 6$ (2)

Q3: When a space satellite orbits the earth , the force F attracting it towards the earth is

 inversely proportional to the square of the distance R the center of the earth. Express

 F in terms of R and the constant of the variation k. Hence calculate

1. The value of k if F= 50 and when R = 32. (2)
2. The value of R if F = 512. (2)