The City School

North Nazimabad Boys Campus
Topic: Number Sequence

Class: **7th**

Q1: Consider the pattern:

$$3(0) + 1 = 1$$
$$3(1) + 1 = 4$$
$$3(2) + 1 = 7$$
$$3(3) + 1 = 10$$
$$\vdots$$
$$\vdots$$
$$3(n) + 1 = 88$$

(i) Write down the 10th and 15th line in the pattern.

(ii) Find the value of n.

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Q2: Consider the pattern:

$$1 = 1^2$$
$$1 + 3 = 2^2$$
$$1 + 3 + 5 = 3^2$$
$$1 + 3 + 5 + 7 = 4^2$$
$$\vdots$$
$$\vdots$$
$$1 + 3 + 5 + \ldots + (2k - 1) = 100$$

(i) Write down the 9th line in the pattern.

(ii) Find the value of k.

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Q3: Consider the pattern:

$$(3 \times 4) + 1 = 13$$
$$(4 \times 5) + 2 = 22$$
$$(5 \times 4) + 3 = 33$$
$$\vdots$$
$$\vdots$$
$$(a \times b) + 20 = 526$$

(i) Write down the sixth line in the pattern.

(ii) Evaluate $(20 \times 21) + 18$

(iii) Using the pattern, find the values of **a** and **b.**

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