NC Math IB Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit 6 Review Packet

**I. Short Answer**

1. An ordered list of numbers is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. There are two types of sequences, what are they? What makes them different?

3. A sequence can be represented using a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ equation which means you move from one term in the sequence to the next by taking one step at a time.

4. A sequence can also be represented using an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ equation. This means you move from the first term in the sequence directly to any other term in the sequence.

5. Fill in the blanks with the correct recursive notation.

 Next = \_\_\_\_\_\_\_\_\_\_ Now = \_\_\_\_\_\_\_\_\_\_ Previous = \_\_\_\_\_\_\_\_\_\_ Start at = \_\_\_\_\_\_\_\_\_\_

6. Complete the Table:

|  |  |  |
| --- | --- | --- |
|  | **Arithmetic** | **Geometric** |
| **Next-Now** |  |  |
| **Recursive Notation** |  |  |
| **Explicit Formula** |  |  |

**II. Determine if the sequence is arithmetic, geometric, or neither. If it is arithmetic, find the common difference (d). If it is geometric, find the common ratio (r).**

1. $11, 19, 28, 38, …$ 2. $4, 16, 36, 64, …$

3. $3, 18, 108, 648, … $ 4. $-12.5, -6.5, -0.5, 5.5, …$

5. $3, 7, 11, 15, …$ 6. $1, -5, 25, -125, … $

7. $2, 8, 32, 128, … $ 8. $-12, 2, -\frac{1}{3}, \frac{1}{18}, …$

**III. Complete each table:**

1.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| n | $$1$$ | $$2$$ | $$3$$ | $$4$$ | … | $$18$$ | … |  |
| $$a\_{n}$$ | $$37$$ | $$-163$$ | $$-363$$ |  | … |  | … | $$-10163$$ |

 Common Difference: \_\_\_\_\_\_\_\_\_\_

 NEXT-NOW Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Recursive Formula (using recursive notation): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Explicit Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| n | $$1$$ | $$2$$ | $$3$$ | $$4$$ | … | $$6$$ | … |  |
| $$a\_{n}$$ | 3 | 12 | 48 |  |  |  |  | $$786,432$$ |

2.

 Common Ratio: \_\_\_\_\_\_\_\_\_\_

 NEXT-NOW Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Recursive Formula (using recursive notation): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Explicit Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| n | $$1$$ | $$2$$ | $$3$$ | $$4$$ | … | $$10$$ | … |  |
| $$a\_{n}$$ | $$-11$$ | $$-4$$ | $$3$$ |  |  |  |  | 304 |

3.

 Common Difference: \_\_\_\_\_\_\_\_\_\_

 NEXT-NOW Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Recursive Formula (using recursive notation): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Explicit Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**IV. Find the indicated term**

1. Find the 52nd term in the sequence: $-19, -12, -5, 2, …$

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Common Ratio/Common Difference Explicit Equation (with numbers) Solution

2. Find the 19th term in the sequence: $3, 9, 27, 81, …$

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Common Ratio/Common Difference Explicit Equation (with numbers) Solution

3. Find $A\_{15}$ if the first term in the sequence is $-4$ and $r=3.$ .

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Arithmetic or Geometric Explicit Equation (with numbers) Solution

4. Find $A\_{22}$ if the first term in the sequence is $18$ and $d=-10.$ .

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Arithmetic or Geometric Explicit Equation (with numbers) Solution

5. Write the first seven terms of the sequence: $A\_{n+1}=A\_{n}+6; A\_{1}=16$

6. Write the first five terms of the sequence: $A\_{n+1}=A\_{n}∙6; A\_{1}=2$