

Unit 7 - Practice Quiz #2

For each sequence, state if it is arithmetic, geometric, or neither.

1) -3, -1, 2, 6, 11, ...

- *A) Neither
- B) Geometric
- C) Arithmetic

2) -2.5, -10, -40, -160, -640, ...

- A) Arithmetic
- *B) Geometric
- C) Neither

3) -31, -21, -11, -1, 9, ...

- A) Geometric
- *B) Arithmetic
- C) Neither

4) -2, 1, 6, 13, 22, ...

- *A) Neither
- B) Arithmetic
- C) Geometric

For each arithmetic sequence, find the common difference, the explicit formula, and the recursive formula.

5) 8, 2, -4, -10, ...

$d =$

explicit:

recursive:

Common Difference: $d = -6$

Explicit: $a_n = 14 - 6n$

Recursive: $a_n = a_{n-1} - 6$

$a_1 = 8$

6) -5, -105, -205, -305, ...

$d =$

explicit:

recursive:

Common Difference: $d = -100$

Explicit: $a_n = 95 - 100n$

Recursive: $a_n = a_{n-1} - 100$

$a_1 = -5$

For each geometric sequence, find the common ratio, the explicit formula, and the recursive formula.

7) -4, 8, -16, 32, ...

$r =$

explicit:

recursive:

Common Ratio: $r = -2$

Explicit: $a_n = -4 \cdot (-2)^{n-1}$

Recursive: $a_n = a_{n-1} \cdot -2$

$a_1 = -4$

8) -1, 5, -25, 125, ...

$r =$

explicit:

recursive:

Common Ratio: $r = -5$

Explicit: $a_n = -(-5)^{n-1}$

Recursive: $a_n = a_{n-1} \cdot -5$

$a_1 = -1$

Evaluate each series.

$$9) \sum_{a=1}^6 (4a^2 - 3)$$

346

$$10) \sum_{k=1}^7 k(k-2)$$

84

$$11) \sum_{k=2}^6 (k + 600)$$

3020

$$12) \sum_{n=1}^6 n^2$$

91

Rewrite each series using sigma notation.

$$13) 1 + 4 + 9 + 16 + 25$$
$$\sum_{a=1}^5 a^2$$

$$14) 0 + 3 + 6 + 9$$
$$\sum_{k=0}^3 3k$$

$$15) 2 + 4 + 6 + 8$$
$$\sum_{a=1}^4 2a$$

$$16) 201 + 202 + 203 + 204 + 205 + 206$$
$$\sum_{k=1}^6 (k + 200)$$

Evaluate.

$$17) \frac{(14 + 2)!}{(11 - 3)!}$$

518,918,400

$$18) \frac{(n - 2)!}{n!}$$
$$\frac{1}{n(n-1)} = \frac{1}{n^2 - n}$$

Evaluate each limit.

$$19) \lim_{x \rightarrow \infty} (-x^4 + 2x^2 - 2x - 1)$$

$-\infty$

$$20) \lim_{x \rightarrow \infty} (-x^5 + 4x^3 - 4x - 1)$$

$-\infty$

$$21) \lim_{x \rightarrow \infty} \frac{x^3}{2x^2 - 2}$$

∞

$$22) \lim_{x \rightarrow \infty} \frac{x - 2}{x^2 + x + 1}$$

0

$$23) \lim_{x \rightarrow \infty} \frac{3x}{x + 3}$$

3

$$24) \lim_{x \rightarrow -\infty} \frac{x}{x^2 + x + 1}$$

0