6.3 Explicit Formulas for Sequences

NOTES

ALGEBRA

Write your questions here!

Ex 1:

a) Is this Arithmetic or Geometric? Why?

b) What's the 100th number in the sequence?

c) Explain how you got the 100th number? Is there an easier way?

Explicit Formula:

General Form for Arithmetic Explicit Formula

Ex 2:

a) Is this Arithmetic or Geometric? Why?

b) What's the 25^{th} term of the sequence?

c) What's an explicit formula for this sequence?

General Form for Geometric Explicit Formulas

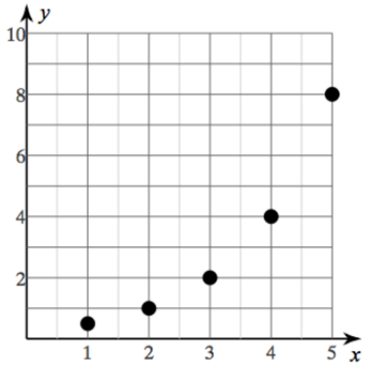
Ex 3:
a) Is this Arithmetic or Geometric? Why?

b) What is the explicit formula for this sequence?

c) What is the 34^{th} term for this sequence?

d) Describe what the graph will look like using complete sentences.

Ex 4:
a) Is this sequence arithmetic or geometric? Why?



b) What is the explicit formula for this sequence?

YOU TRY!
Consider the following sequence:
a) Is this sequence geometric or arithmetic? Why?

b) What is the explicit formula for this sequence?

c) Describe what the graph will look like using complete sentences.

SUMMARY:

Now, summarize your notes here!

6.3 Explicit Formulas for Sequences

PRACTICE

Directions: 1-3: Choose the best explicit formula for the following sequence.

1) 40, 32, 24, 16

a) $G(n) = 48 + 8n$
b) $G(n) = G(n-1) - 8$
c) $G(n) = 40 - 8(n-1)$
d) $G(n) = 40 + 8(n-1)$

2) -3, -6, -12, -24

a) $h_n = (-3)(2^{n-1})$
b) $h_n = (2)(-3^{n-1})$
c) $h_n = (3)(-2^{n-1})$
d) $h_n = h_{n-1} \times 2$

3) 10, 20, 30, 40, 50

a) $b_n = 10 - 10(n-1)$
b) $b_n = b_{n-2} + b_{n-1}$
c) $b_n = b_{n+1} + b_{n+2}$
d) $b_n = 10n$

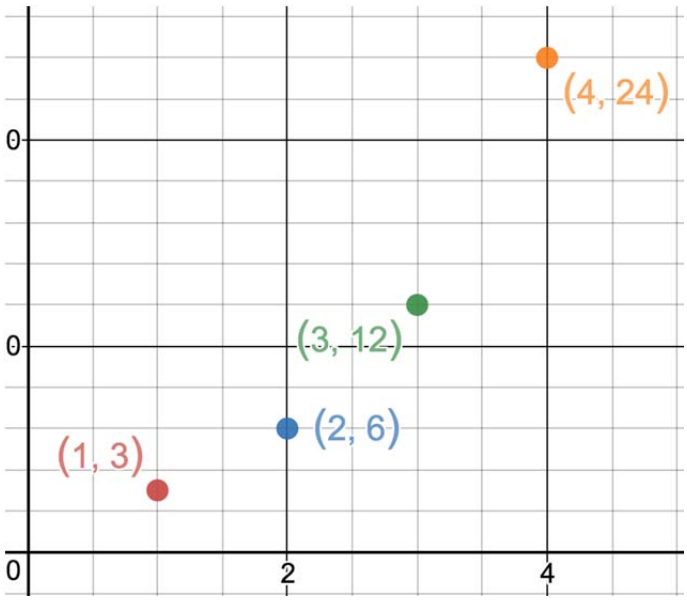
Directions: 4-5: Consider the following graph as a sequence plotted by (n, B(n)).

4)

a) Is this an arithmetic or geometric sequence? How do you know?

b) What is the explicit formula for this sequence?

c) What is the 10th term of the sequence?

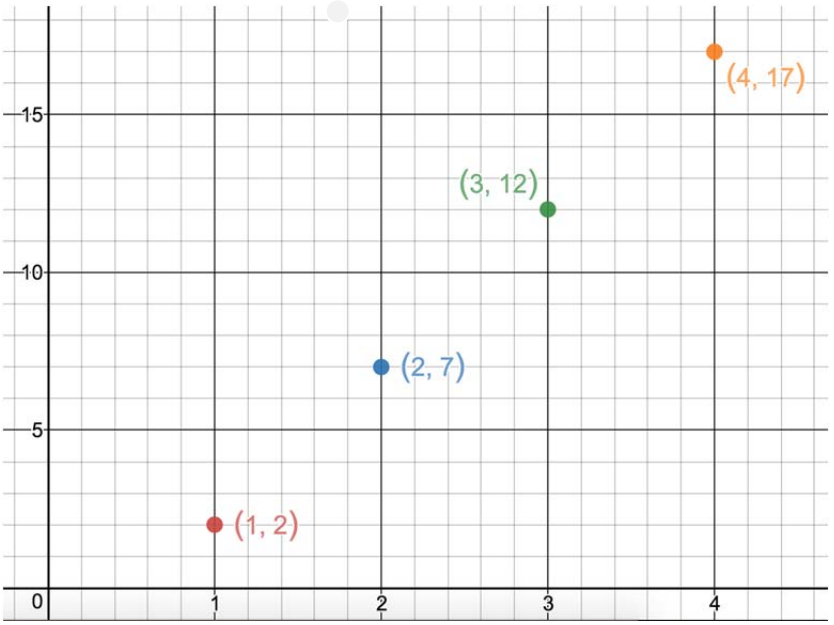


5)

a) Is this an arithmetic or geometric sequence? How do you know?

b) What is the explicit formula for this sequence?

c) What is the 25th term of the sequence?



Directions: 6-10: Use the sequence to answer each of the questions.

6) 1.25, 2.75, 4.25, 5.75

a) What is the explicit formula for this sequence?

b) What is the 25^{th} term of the sequence?

c) Describe what the graph will look like using complete sentences.

7) -5, -15, -45, -135

a) What is the explicit formula for this sequence?

b) What is the 15^{th} term of the sequence?

c) Describe what the graph will look like using complete sentences.

8) 4, 15, 26, 37

a) What is the explicit formula for this sequence?

b) What is the 20^{th} term of the sequence?

c) Describe what the graph will look like using complete sentences.

9) 98, 89, 80, 71

a) What is the explicit formula for this sequence?

b) What is the 30^{th} term of the sequence?

c) Describe what the graph will look like using complete sentences.

10) 200, 100, 50, 25

a) What is the explicit formula for this sequence?

b) What is the 10^{th} term of the sequence?

c) Describe what the graph will look like using complete sentences.

Directions: Solve the equation. Put your solution into set notation.

11) $-1 = \frac{r-1}{2} - 5$

Circle all the ordered pairs (x, y) that are solutions to the given equation.

12) $7y - 2x = -1$

$(11, 3)$ $(0, 1)$ $(1, -8)$ $(-5, 1)$ $(4, 1)$

Directions: Find the product.	Directions: Solve each inequality. Express the solution graphically and in set notation.
13) $(3k-1)(3k^2-11k-8)$	14) $92 > -4\,(x-9)$

Directions: Use the dot plot to create a boxplot. Plot the Boxplot on the same axis above the dot plot.

15)

← Plot your boxplot here, using the dot plot's number line.

5 # Summary				
Min =	1Q =	Median =	3Q =	Max =

IQR = _____

a. What percent of the students read between 1 and 9 books last summer?

b. The middle 50% of students read how many books?

c. The top 25% of students read between how many books?

6.3 Explicit Formulas for Sequences

WRAP UP

Use the following patterns to answer the questions.	
1) 2, 8, 32, 128, 512 a. What is the explicit formula for this sequence? b. What is the 10^{th} term of the sequence?	2) -1, 2, 5, 8, 11, 14 a. What is the explicit formula for this sequence? b. What is the 15^{th} term of the sequence?

3) Consider the following EXPLICIT formula: $E(n) = 2 + 2(n - 1)$

a. Complete the following table.

n	1	2	3	4	5	6	7	8	9	10	11	12	13
$E(n)$	2												

b. Translate the explicit formula to WORDS:

c. Now complete this table for the following RECURSIVE formula: $R(n) = 2 + 2 \times R(n - 1);\ R(1) = 2$

n	1	2	3	4	5	6	7	8	9	10	11	12	13
$R(n)$	2												

d. Translate the recursive formula to WORDS.

e. Compare the two sequences created by both the EXPLICIT and RECURSIVE formulas. What similarities are there? Differences? What kind of relationship is formed by the EXPLICIT formula? By the RECURSIVE formula?

SMP #7

SMP #8

EXIT TICKET –

1) Create your own RECURSIVE formula that will also form an exponential relationship. Remember to include your first term.

2) Use the formula you created and find the first 6 terms of the sequence.

3) What is the EXPLICIT formula for the sequence?