Activator

Given the following pattern. What is a_7?

Get colored sheets from the table.

+6 +6 +6

$$\underset{a_0}{2}, \underset{a_1}{8}, \underset{a_2}{14}, \underline{\quad}_{a_3}, \underline{\quad}_{a_4}, \underline{\quad}_{a_5}, \underline{\quad}_{a_6}, \underline{\quad}_{a_7}$$

Is this an exponential pattern? No

Why? It is NOT repeated multiplication.

Y = 6x + 2

No exponent

Today's Objective

Unit 6
Lesson 5

Students will be able to compare linear, exponential, and recursive (reoccurring) patterns.




Announcements

Today's New (1 of 4)

An exponential pattern has REPEATED multiplication and/or division.

A linear pattern has REPEATED addition and/or subtraction.

A recursive pattern (reoccurring) can be written for both.

RED= No, YELLOW= Yes, BLUE= Question

Today's New Vocab (2 of 4)

Write the pattern recursively $A_{n+1} = A_n + 12$

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A_n = The current number

A_{n+1} = The next number

+12 +12 +12

$A_0 = B = 6$

6, 18, 30, 42

What is A_3? 42

A_0 A_1 A_2 A_3

Is this pattern also Linear? Yes Why? Repeated Addition

Today's New Vocab (3 of 4)

Write the linear pattern as a recursive pattern.

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Recursive formula

$$A_{n+1} = A_n - 2$$

$$A_1 = 4$$

$$A_0 = \text{B} = 6$$

Linear? Yes

Pattern?

Subtraction of 2

-2 -2 -2

6, 4, 2, 0, -2, -4, -6, -8

a_0 a_1 a_2 a_3 a_4 a_5 a_6 a_7

Today's New Vocab (4 of 4)

Write the pattern recursively. Find P_1

$$P_{x+1} = (2)P_x$$

$$P_0 = 4$$

$$P_{0+1} = (2)P_0$$

$$P_1 = (2)(4)$$

$$P_1 = 8$$

x	P(x)
0	4
1	8
2	16
3	32

(2)

(2)

(2)

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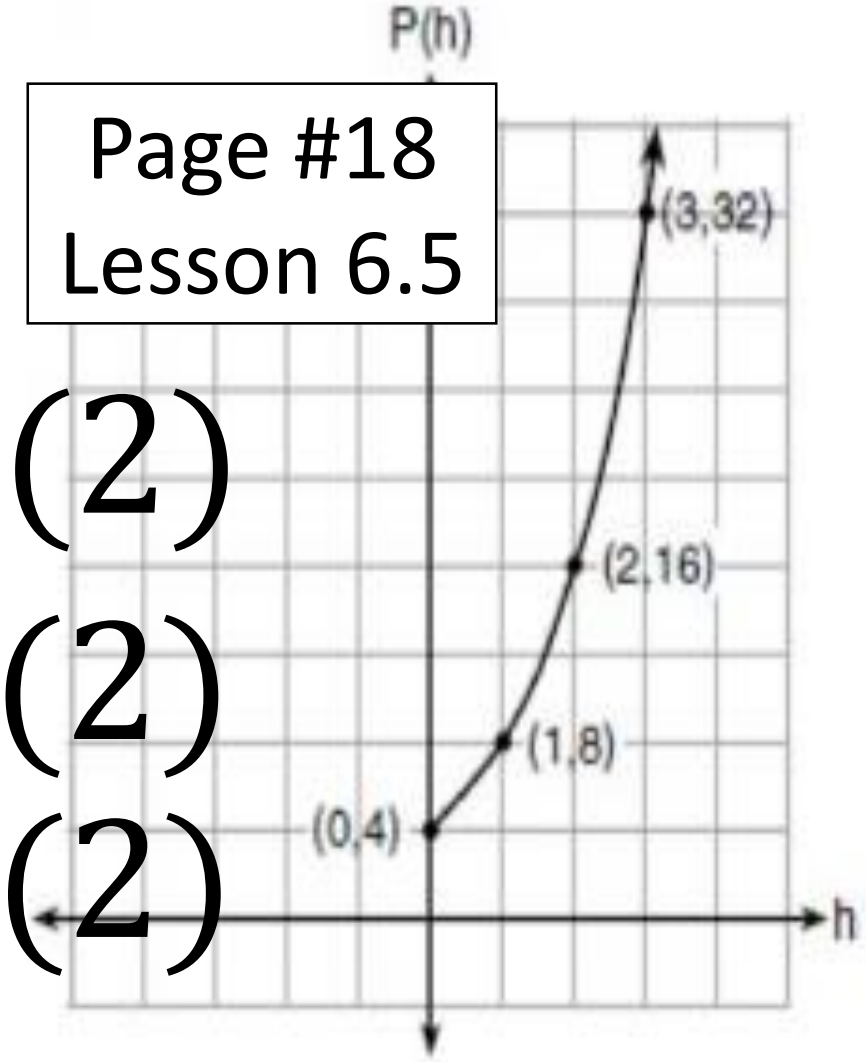

Group Work Questions

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Directions: All groups, please do all of the questions. Use your notes from last class to help you. [Ask 2 people before you ask me.]

Last time, we did Lesson 6.5 Notes.

2nd Stop @ 9:03

3rd Stop @ 10:06

8th Stop @ 2:25

*One person from each group will present one question.

Work Period

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Write the table as a recursive pattern.

$A_{n+1} = (3)A_n$

$A_0 = \text{B} = 2$

Pattern? (3)

n	0	1	2	3
A(n)	2	6	18	54

(3) (3)(3)

What type of pattern is this? Exponential

Write the equation for this pattern. $Y = 2(3)^x$

Exit Ticket

Complete the recursive table. What is T_4?

$$T_{2+1} = (-1)T_2$$
$$T_3 = (-1)(2)$$
$$T_3 = -2$$

$$T_{3+1} = (-1)T_3$$
$$T_4 = (-1)(-2)$$
$$T_4 = 2$$

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n	0	1	2	3	4
T(n)	2	-2	2	-2	2
	(-1)	(-1)	(-1)	(-1)	

$$T_0 = 2$$

$$C = \frac{2}{-2} = (-1)$$