

6/8 ©

Student B

1. Given the Sequence: {3, 5, 7, 9, 11, ...}, write the recursive routine and the explicit recursive formula.

3/3

$$a_n = 3 + 2(n-1)$$

$$a_1 = 3$$

$$a_2 = 3 + 2$$

$$a_3 = 3 + 2 + 2$$

$$a_4 = 3 + 2 + 2 + 2$$

$$a_n = a_{n-1} + 2$$

2. Given the Sequence: {3, 3.75, 4.6875, 5.8594, ...}, write the recursive routine and the explicit recursive formula.

explicit formula

$$a_n = 3 \cdot 1.25^{(n-1)}$$

2/3 recursive routine

$$a_n = a_{n-1} \cdot 1.25$$

$$a_1 = 3$$

$$a_2 = 3 \cdot 1.25$$

$$a_3 = 3 \cdot 1.25 \cdot 1.25$$

$$a_4 = 3 \cdot 1.25 \cdot 1.25 \cdot 1.25$$

3. Is 256 in the geometric sequence: {1, 2, 4, 8, 16, ...}? How do you know 256 is or is not in the sequence? (Prove using math and explain using full sentences).

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$$a_1 = 1$$

$$a_2 = 1 \cdot 2$$

$$a_3 = 1 \cdot 2 \cdot 2$$

$$a_4 = 1 \cdot 2 \cdot 2 \cdot 2$$

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

exponent

$$256 = 1 \cdot 2^{(n-1)}$$

$$256 = 1 \cdot 2^{n-2}$$

$$258 = 1 \cdot 2^n$$

$$258 = \frac{2^n}{2}$$

$$129 = n$$

I know that 256 is in the sequence because I figured out it was the 129th term. So I know 129 is a whole number so it is true.

Becker Recursive Routine Quiz 2

7/8 (B+)

Name: Student B / Period: 4

1a. Given the sequence, {4, 8, 12, 16, ...} write the recursive routine and the explicit

formula. Show your work.

$a_1 = 4$ ✓

$a_2 = 4 + 4$ ✓

$a_3 = 4 + 4 + 4$

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explicit

$a_n = 4 + 4(n-1)$ ✓

recursive

$a_n = a_{n-1} + 4$ ✓

b. Is the 54 a number in this sequence? Use math to prove and explain using full

sentences.

$54 \div 4 = 13.5$ ✓

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13.5 is not a multiple of 4 so 54 will never appear ✓ in the sequence.

13.5 is not a whole number and since n represents the term number, 54 is not in the sequence. (So it is because 54 is not a multiple of 4, not 13.5.)

2. Given the sequence, {1, 6, 36, 216, ...} write the explicit formula. Show your work.

$a_1 = 1$

$a_2 = 1(6)$ ✓

$a_3 = 1(6)(6)$

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$a_n = 1 \cdot 6^{n-1}$ ✓ explicit

$a_n = a_{n-1} \cdot 6$ recursive