

per. 4

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(D)

# Student C

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

$a_1 = 3$  ✓

$a_2 = 3+2$

$a_3 = 3+2+2$

$a_n = 3 + 2(n-1)$  ✓

Explicit Formula ✓

$a_n = a_{n-1} + 2$  ✓

recursive routine ✓

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

$a_1 = 3$

$a_2 = 3(1.25)$

$a_3 = 3(1.25)(1.25)$

$a_n = 1.25(n-1)$  ✓

Explicit Formula X

$a_n = a_{n-1}(1.25)$  ✓

recursive routine ✓

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Geometric sequence

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

It is geometric

$a_1 = 1$

$a_2 = 2$

$a_3 = 2 \times 2$

$a_4 = 2 \times 2 \times 2$

$256 = 1 + 2(n-1)$

$256 = 1 + 2(n-1)$

~~$256 = 2 \times 2 \times 2$~~   $256 = 1 + 2n - 2$

$a_n = 1 + 2(n-1)$  = Explicit Formula X

~~$256 = 2 \times 2 \times 2$~~   $256 = -x + 2n$   
 ~~$256 = 2 \times 2 \times 2$~~   $256 = 1 + 2n$

~~$257 = 2n$~~   
 ~~$5 = 2n$~~

X 128.5

256 is not in the sequence because 128.5 is not a whole number, 256 can not be in the sequence because 128.5 is not whole.

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X

X ✓

# Becker Recursive Routine Quiz 2

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(A)

Name: Student C Period: 4

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

formula. Show your work.

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$$a_1 = 4$$

$$a_2 = 4+4 \text{ or } \cancel{4+4}$$

$$a_3 = 4+4+4$$

$$a_n = 4 + 4(n-1) \quad \text{Explicit formula}$$

$$a_n = a_{n-1} + 4 \quad \text{Recursive routine}$$

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

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$$54 = 4 + 4(n-1)$$

$$54 = 4 + 4n - 4$$

$$54 = 4n \quad \checkmark$$

$$\frac{54 = 4n}{4n} = 13.5$$

54 is not in the sequence because when you divide 54 by 4, you do not get a whole number. Therefore 54 cannot be in the sequence. Good Explanation!

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

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$$1 \times 6 = 6 \quad 6 \times 6 = 36 \quad 36 \times 6 = 216$$

$$a_1 = 1$$

$$a_2 = 1(6) \quad \checkmark$$

$$a_3 = 1(6)(6)$$

$$a_4 = 1(6)(6)(6)$$

$$a_n = 1(6)^{n-1} \quad \text{Explicit formula}$$