

Student A

Pg. 4

8/8 (A)

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

$$a_n = a_{n-1} + 2 \quad \text{-recursive routine}$$

$$a_1 = 3$$

$$a_2 = 3 + 2$$

$$a_3 = 3 + 2 + 2$$

$$a_n = 3 + 2(n-1) \quad \text{-Explicit}$$

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

$$a_n = a_{n-1} \times 1.25 \quad \text{-recursive routine}$$

$$a_n = 3(1.25)^{n-1} \quad \text{-Explicit}$$

$$a_1 = 3$$

$$a_2 = 3 \times 1.25$$

$$a_3 = 3 \times 1.25 \times 1.25$$

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).

$$a_1 = 1$$

$$a_2 = 1 \times 2$$

$$a_3 = 1 \times 2 \times 2$$

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

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

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

$$2^{n-1} = 28$$

$$2^8 = 256$$

- Since this is a whole number, 256 is the n^{th} term and is in the sequence

Becker Recursive Routine Quiz 2

8/8

(A)

Name: Student A , 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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$$a_1 = 4 \quad \checkmark$$

$$a_2 = 4 + 4$$

$$a_3 = 4 + 4 + 4$$

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

$$a_n = a_{n-1} + 4 \quad \text{- recursive} \quad \checkmark$$

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

3/3

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

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

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

$$+5 \qquad \qquad +4$$

$$59 = 4 + 4n$$

$$-4 \quad -4$$

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

$$13.5 = n \quad \checkmark$$

Because 13.5 isn't a whole number it means that the number 54 is not in the sequence. \checkmark

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

2/2

$$a_1 = 1$$

$$a_2 = 1 \times 6 \quad \checkmark$$

$$a_3 = 1 \times 6 \times 6$$

$$a_4 = 1 \times 6 \times 6 \times 6$$

3 6's

$a_n = 1(6)^{n-1}$