

Bellwork Alg 2B Monday, January 8, 2018

State if each sequence is Arithmetic, Geometric, or Neither then find the next three terms. If the sequence is Arithmetic or Geometric write both the explicit and recursive formulas.

1. 6, 9, 16, 27, 42, ...

2. 32, 48, 72, 108, ...

3. 411, 394, 377, 360, ...

4. 21, 30, 14, 39, 3, ...

5. A food truck sells salads for \$6.50 and drinks for \$2.00 each. The food truck's revenue from selling a total of 209 salads and drinks in one day was \$836.50. How many salads were sold that day?

A) 77 B) 93 C) 99 D) 105

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1. 6, 9, 16, 27, 42, ...

$\begin{array}{c} \vee \vee \vee \vee \\ +3 \ +7 \ +11 \ +15 \end{array}$

2. 32, 48, 72, 108, ...

• Neither

• pattern: after you add 3 then the amount added increases by 4.

61 , 84 , 111

• Geometric $r = 1.5$

• 162 , 243 , 364.5

• $a_1 = 32$ $a_n = (a_{n-1})(1.5)$

• $a_n = 32(1.5)^{n-1}$

3. 411, 394, 377, 360, ...

• Arithmetic $d = -17$

• 343 , 326 , 309

• $a_1 = 411$ $a_n = a_{n-1} - 17$

• $a_n = 411 + -17(n-1)$

$\begin{array}{c} -16 \ -36 \\ \uparrow \ \uparrow \\ 21, 30, 14, 39, 3, \dots \\ \downarrow \ \downarrow \\ +9 \ +25 \end{array}$

• Neither

• pattern: alternate adding and subtracting the next perfect square

52 , -12 , 69

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$x = \# \text{ salads sold}$
 $y = \# \text{ drinks sold}$

$$\begin{aligned} x + y &= 209 \\ 6.50x + 2y &= 836.50 \end{aligned}$$

$$\begin{aligned} &\begin{matrix} A & B \end{matrix} \\ &\begin{bmatrix} 1 & 1 \\ 6.5 & 2 \end{bmatrix} \begin{bmatrix} 209 \\ 836.50 \end{bmatrix} \\ &A^{-1}B = \begin{bmatrix} 93 \\ 116 \end{bmatrix} \end{aligned}$$

salads sold
was 93