

Bellwork Alg 2B 6th hr Tuesday, January 9, 2018

State if each sequence is Arithmetic, Geometric, or Neither then find the next three terms. If the sequence is Arithmetic 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. Find the missing terms of this Geometric Sequence:

12, __, __, __, 15552

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

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

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

Neither

pattern: add every other odd #

next 3: 61, 84, 111

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

Geometric

pattern: multiply by 1.5

next 3:

162, 243, 364.5

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

$$\begin{array}{c} \downarrow \quad \downarrow \quad \downarrow \\ -17 \quad -17 \quad -17 \end{array}$$

Arithmetic

pattern: subtract 17

Next 3: 343, 326, 309

Recursive formula $a_1 = 411$
 $a_n = a_{n-1} - 17$

Explicit formula $a_n = 411 - 17(n-1)$

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

$$\begin{array}{c} \downarrow \quad \downarrow \quad \downarrow \\ +9 \quad +24 \end{array}$$

Neither

pattern: alternate adding & subtracting next perfect square.

5. Find the missing terms of this Geometric Sequence:

12, __, __, __, 15552

12, ± 72 , 432 , ± 2592 , 15552

3rd term is geometric mean of 1st & 5th terms

$$3rd \text{ term} = \sqrt{12 \cdot 15552} = 432$$

2nd term is the geometric mean of 1st & 3rd terms

$$2nd \text{ term} = \sqrt{12 \cdot 432} = 72$$

4th term is the geometric mean of 3rd & 5th terms

$$4th \text{ term} = \sqrt{432 \cdot 15552} = 2592$$

if r is neg then 2nd & 4th terms could also be neg.

find the common ratio (r)

$$12 \cdot r \cdot r \cdot r \cdot r = 15552$$

$$12r^4 = 15552$$

$$r^4 = 1296$$

$$r = \pm \sqrt[4]{1296} = \pm 6$$

use this common ratio starting with the first term to find the 2nd & 3rd & 4th terms