Bellwork Alg 2B Tuesday, January 16, 2018

Tell if each formula represents a sequence that is arithmetic, geometric, or neither.

1. $a_n = 5 - 3n$

2. $a_n = n^2 + 1$

3. $a_n = \frac{5 \cdot 2^n}{4}$

Find the limit of each sequence, if there is one.

4. $\frac{8}{31}, \frac{12}{32}, \frac{16}{33}, \frac{20}{34}, \ldots$

5. $19.6, 17.9, 16.2, 14.5, \ldots$

6. $72.9, 48.6, 32.4, 21.6, \ldots$

7. $\frac{49}{200}, \frac{64}{400}, \frac{81}{600}, \frac{100}{800}, \ldots$

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Answers

Tell if each formula represents a sequence that is arithmetic, geometric, or neither.

1. $a_n = 5 - 3n$

Sequence:

2, -1, -4, -7, ...

Arithmetic
$d = -3$

2. $a_n = n^2 + 1$

Sequence:

2, 5, 10, 17, ...

Neither

3. $a_n = \frac{5 \cdot 2^n}{4}$

Sequence:

2.5, 5, 10, 20, ...

Geometric
$r = 2$

Find the limit of each sequence, if there is one.

4. $\frac{8}{31}, \frac{12}{32}, \frac{16}{33}, \frac{20}{34}, \ldots$ (4·2, 4·3, 4·4, 4·5)

$n = 1 \quad 2 \quad 3 \quad 4$

Explicit Formula

$$a_n = \frac{4(n+1)}{n+30} = \frac{4n+4}{n+30}$$

rational function HA $y = \frac{4}{1} = 4$

Limit = 4

5. 19.6, 17.9, 16.2, 14.5, ...

Arithmetic Seq $d = -1.7$

NO LIMIT

6. 72.9, 48.6, 32.4, 21.6, ...

Geometric Sequence
$r = 2/3$

Limit = 0

$n = 1 \quad 2 \quad 3 \quad 4$

7. $\frac{49}{200}, \frac{64}{400}, \frac{81}{600}, \frac{100}{800}, \ldots$

Explicit Formula

$$a_n = \frac{(n+6)^2}{200n}$$

Rational Function with degree of numerator greater than degree of denominator

NO LIMIT