Algebra 1 Name_____ ID: 1

Geometric sequences practice

Date_____ Period____

Determine if the sequence is geometric. If it is, find the common ratio and the three terms in the sequence after the last one given.

1) −0.5, −1, −2, −4, ...

2) −1, 4, −16, 64, ...

3) −1, 3, −9, 27, ...

4) −125, −25, −5, −1, ...

5) −64, 32, −16, 8, ...

6) 1, 5, 25, 125, ...

Determine if the sequence is geometric. If it is, find the explicit formula and the recursive formula.

7) 10, 12, 14, 16, ...

8) 4, 24, 144, 864, ...

9) −3, −12, −48, −192, ...

10) 119, 1196, 11966, 119666, ...

11) −1, −4, −16, −64, ...

12) −4, 8, −16, 32, ...

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Determine if the sequence is geometric. If it is, find the common ratio and the three terms in the sequence after the last one given.

1) $-0.5,\ -1,\ -2,\ -4,\ \ldots$

Common Ratio: $r = 2$
Next 3 terms: $-8,\ -16,\ -32$

2) $-1,\ 4,\ -16,\ 64,\ \ldots$

Common Ratio: $r = -4$
Next 3 terms: $-256,\ 1024,\ -4096$

3) $-1,\ 3,\ -9,\ 27,\ \ldots$

Common Ratio: $r = -3$
Next 3 terms: $-81,\ 243,\ -729$

4) $-125,\ -25,\ -5,\ -1,\ \ldots$

Common Ratio: $r = \frac{1}{5}$
Next 3 terms: $-\frac{1}{5},\ -\frac{1}{25},\ -\frac{1}{125}$

5) $-64,\ 32,\ -16,\ 8,\ \ldots$

Common Ratio: $r = -\frac{1}{2}$
Next 3 terms: $-4,\ 2,\ -1$

6) $1,\ 5,\ 25,\ 125,\ \ldots$

Common Ratio: $r = 5$
Next 3 terms: $625,\ 3125,\ 15625$

Determine if the sequence is geometric. If it is, find the explicit formula and the recursive formula.

7) $10,\ 12,\ 14,\ 16,\ \ldots$

Not geometric

8) $4,\ 24,\ 144,\ 864,\ \ldots$

Explicit: $a_n = 4 \cdot 6^{n-1}$
Recursive: $a_n = a_{n-1} \cdot 6$
$a_1 = 4$

9) $-3,\ -12,\ -48,\ -192,\ \ldots$

Explicit: $a_n = -3 \cdot 4^{n-1}$
Recursive: $a_n = a_{n-1} \cdot 4$
$a_1 = -3$

10) $119,\ 1196,\ 11966,\ 119666,\ \ldots$

Not geometric

11) $-1,\ -4,\ -16,\ -64,\ \ldots$

Explicit: $a_n = -4^{n-1}$
Recursive: $a_n = a_{n-1} \cdot 4$
$a_1 = -1$

12) $-4,\ 8,\ -16,\ 32,\ \ldots$

Explicit: $a_n = -4 \cdot (-2)^{n-1}$
Recursive: $a_n = a_{n-1} \cdot -2$
$a_1 = -4$