Algebra 2, Unit 1.4 Name _____

Geometric Sequences Practice

Date _____

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

1) $-2, -6, -18, -54, \ldots$

$-162, -486, -1458$

2) $-1, -3, -9, -27, \ldots$

$-81, -243, -729$

3) $2, 4, 12, 48, \ldots$

not geometric

4) $-2, -10, -50, -250, \ldots$

$-1250, -6250, -31250$

Given the first term and the common ratio of a geometric sequence find the first five terms.

5) $a_1 = -1,\ r = 2$

$-1, -2, -4, -8, -16$

6) $a_1 = 2,\ r = 6$

$2, 12, 72, 432, 2592$

7) $a_1 = -3,\ r = -5$

$-3, 15, -75, 375, -1875$

8) $a_1 = -4,\ r = -3$

$-4, 12, -36, 108, -324$

Find the common ratio and the term named in the problem.

9) $-1, 4, -16, 64, \ldots$

Find a_{10}

$r = -4$

$a_{10} = 262144$

10) $1, 5, 25, 125, \ldots$

Find a_9

$r = 5$

$a_9 = 390625$

11) $-2, -4, -8, -16, \ldots$

Find a_{11}

$r = 2$

$a_{11} = -2048$

12) $3, 9, 27, 81, \ldots$

Find a_{12}

$r = 3$

$a_{12} = 531441$

Given the first term and the common ratio of a geometric sequence find the term named in the problem and the explicit formula.

13) $a_1 = -2,\ r = 4$

Find a_{10}

$a_{10} = -524288$

$a_n = -2 \cdot 4^{n-1}$

14) $a_1 = -2,\ r = -2$

Find a_{12}

$a_{12} = 4096$

$a_n = -2 \cdot -2^{n-1}$

15) $a_1 = 1,\ r = -4$
Find a_{10}

$a_{10} = -262144$

$a_n = (-4)^{n-1}$

16) $a_1 = -2,\ r = -3$
Find a_{11}

$a_{11} = -118098$

$a_n = -2 \cdot (-3)^{n-1}$

Find the term named in the problem and the explicit formula.

17) –4, –12, –36, –108, ...
Find a_{12}

$a_{12} = -708588$

$a_n = -4 \cdot 3^{n-1}$

18) 1, 5, 25, 125, ...
Find a_9

$a_9 = 390625$

$a_n = 5^{n-1}$

19) 1, 2, 4, 8, ...
Find a_{10}

$a_{10} = 512$

$a_n = 2^{n-1}$

20) –3, –9, –27, –81, ...
Find a_{12}

$a_{12} = -531441$

$a_n = -3 \cdot 3^{n-1}$

Find the missing term or terms in each geometric sequence.

21) ..., 2, 12, 72, 432, 2592, ...

$2592 = 2 \cdot r^4$

$1296 = r^4$

$r = 6$

22) ..., 4, 24, 144, 864, 5184, 31104, 186624, ...

23) ..., –3, –12, –48, –192, –768, ...

24) ..., 1, 3, 9, 27, 81, 243, ...