

## Quiz Review

Determine if the sequence is arithmetic, geometric, or neither. Then find the recursive and explicit equation. Then find the 10th term.

1) 38, 34, 30, 26, ...  $d = -4$   
Arithmetic

$$R: a_n = a_{n-1} - 4$$

$$a_1 = 38$$

$$E: a_n = 42 - 4n$$

$$a_{10} = 2$$

3) -5, -3, 0, 4, 9, ...

Neither

2) 2, 6, 18, 54, ...  $r = 3$   
Geometric

$$R: a_n = 3a_{n-1}$$

$$a_1 = 2$$

$$E: a_n = 2(3)^{n-1}$$

$$a_{10} = 3^9 \cdot 2 = 19683$$

4) 17, 27, 37, 47, ...  $d = 10$   
Arithmetic

$$R: a_n = a_{n-1} + 10$$

$$a_1 = 17$$

$$E: a_n = 7 + 10n$$

Find the missing term or terms in each arithmetic sequence.

5) 20, 17, 14, 11, 8

$$-8 = 20 + (5-1)(d)$$

$$-8 = 20 + 4d$$

$$-28 = 4d$$

$$-7 = d$$

Find the missing term or terms in each geometric sequence.

6) -2, -6, -18, -54, -162,

$$-162 = -2(r)^{5-1}$$

$$81 = r^4$$

$$3 = r$$

Given the first term and the common difference of an arithmetic sequence find the 52nd term and the explicit formula.

7)  $a_1 = 3, d = 5$

$$a_n = 5n - 2$$

$$a_{52} = 258$$

8)  $a_1 = 11, d = 100$

$$a_n = 100n - 89$$

$$a_{52} = 5111$$

Given the first term and the common ratio of a geometric sequence find the 8th term and the explicit formula.

9)  $a_1 = -2, r = 2$

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

$$a_8 = -256$$

10)  $a_1 = 1000, r = \frac{4}{5}$

$$a_n = 1000\left(\frac{4}{5}\right)^{n-1}$$

$$a_8 = 209.72$$

Evaluate the related series of each sequence. Use your formulas!

11)  $-6, -4, -2, 0, 2, 4$

$$-6$$

12)  $2 - 8 + 32 - 128 \dots, n = 9$

$$104858$$

13)  $a_1 = 12, d = 8, n = 6$

$$192$$

14)  $a_1 = 21, d = 6, n = 12$

$$648$$

Evaluate each arithmetic series described.

15)  $a_1 = 35, a_n = 307, n = 35$

$$5985$$

16)  $a_1 = 16, d = 8, n = 15$

$$1080$$

Evaluate each geometric series described.

17)  $a_1 = 1, a_n = 46656, r = 6$

$$55987$$

Determine if each geometric series converges or diverges. Find the sum if able.

18)  $64 + 32 + 16 + 8 \dots$  Converges

$$S = \frac{64}{1 - \frac{1}{2}} = 128$$

19)  $-\frac{7}{5} + \frac{7}{20} - \frac{7}{80} + \frac{7}{320} \dots$  Converges

$$S = \frac{-7/5}{1 - (-\frac{1}{4})} = -1.12$$

20)  $5 + \frac{20}{3} + \frac{80}{9} + \frac{320}{27} \dots$

Diverges

21)  $-3 + 9 - 27 + 81 \dots$

Diverges