

## WS 5-3 - Arithmetic and Geometric Sequences

**Determine if the sequence is arithmetic. If it is, find the common difference.**

1) 2, 22, 42, 62, ...

2) -9, -29, -49, -69, ...

3) 0, 3, 8, 15, ...

4) -40, -50, -60, -70, ...

**Find the three terms in the sequence after the last one given.**

5) 34, 43, 52, 61, ...

6) -10, -16, -22, -28, ...

7) 8, 38, 68, 98, ...

8) -14, -16, -18, -20, ...

**Find the term named in the problem.**

9) 25, 28, 31, 34, ...

Find  $a_{31}$ 

10) 35, 33, 31, 29, ...

Find  $a_{36}$ 

11) -20, -40, -60, -80, ...

Find  $a_{36}$ 

12) -40, -60, -80, -100, ...

Find  $a_{39}$ 

**Determine if the sequence is geometric. If it is, find the common ratio.**

13) 2, -8, 32, -128, ...

14) -1, 6, -36, 216, ...

15) 2, -12, 72, -432, ...

16) -2, -4, -12, -48, ...

**Find the three terms in the sequence after the last one given.**

17)  $-1, 4, -16, 64, \dots$

18)  $1, -2, 4, -8, \dots$

19)  $-3, -6, -12, -24, \dots$

20)  $-3, -15, -75, -375, \dots$

**Find the term named in the problem.**

21)  $2, -4, 8, -16, \dots$   
Find  $a_{12}$

22)  $1, 3, 9, 27, \dots$   
Find  $a_9$

23)  $-2, -4, -8, -16, \dots$   
Find  $a_9$

24)  $-4, -12, -36, -108, \dots$   
Find  $a_9$

**For each sequence, state if it is arithmetic, geometric, or neither. If it is arithmetic, state the common difference. If it is geometric, state the common ratio.**

25)  $-0.5, -1, -2, -4, -8, \dots$

26)  $1, 2, 6, 24, 120, \dots$

27)  $3, 23, 123, 623, 3123, \dots$

28)  $-3, -15, -75, -375, -1875, \dots$

29)  $2, -\frac{3}{2}, \frac{9}{8}, -\frac{27}{32}, \frac{81}{128}, \dots$

30)  $-17, 83, 183, 283, 383, \dots$

31)  $12.9, 13.8, 14.7, 15.6, 16.5, \dots$

32)  $-1, -\frac{1}{2}, 0, \frac{1}{2}, 1, \dots$

33)  $-1, 6, -36, 216, -1296, \dots$

34)  $4, 16, 36, 64, 100, \dots$