

## Arithmetic and Geometric Sequences Practice

Date \_\_\_\_\_ Period \_\_\_\_\_

**Find the common difference, the term named in the problem, the explicit formula, and the three terms in the sequence after the last one given.**

1) 28, 128, 228, 328, ...

Find  $a_{40}$ 

2) -2, -32, -62, -92, ...

Find  $a_{20}$ 

**Given the second term and the common difference of an arithmetic sequence find the term named in the problem and the explicit formula.**

3)  $a_2 = 25, d = -6$

Find  $a_{20}$ 

4)  $a_2 = -15, d = -4$

Find  $a_{27}$ 

**Given a term in an arithmetic sequence and the common difference find the term named in the problem and the explicit formula.**

5)  $a_{27} = -21, d = -2$

Find  $a_{34}$ 

6)  $a_{39} = 311, d = 8$

Find  $a_{34}$ 

**Given two terms in an arithmetic sequence find the common difference, the term named in the problem, and the explicit formula.**

7)  $a_{20} = -160$  and  $a_{40} = -360$

Find  $a_{27}$ 

8)  $a_{12} = 63$  and  $a_{31} = 196$

Find  $a_{34}$

**Find the common ratio, the term named in the problem, the explicit formula, and the three terms in the sequence after the last one given.**

9) 2, -10, 50, -250, ...

Find  $a_9$

10) -3, 6, -12, 24, ...

Find  $a_{11}$

**Given the first term and the common ratio of a geometric sequence find the term named in the problem, the explicit formula, and the three terms in the sequence after the last one given.**

11)  $a_1 = -3, r = 3$

Find  $a_9$

12)  $a_1 = -1, r = 3$

Find  $a_{10}$

**Given a term in a geometric sequence and the common ratio find the term named in the problem, the explicit formula, and the three terms in the sequence after the last one given.**

13)  $a_4 = -192, r = 4$

Find  $a_{10}$

14)  $a_6 = -2048, r = 4$

Find  $a_{10}$

**Given two terms in a geometric sequence find the common ratio, the term named in the problem, and the explicit formula.**

15)  $a_1 = -3$  and  $a_4 = -81$

Find  $a_{10}$

16)  $a_2 = -4$  and  $a_3 = -8$

Find  $a_{12}$

## Arithmetic and Geometric Sequences Practice

Date \_\_\_\_\_ Period \_\_\_\_\_

**Find the common difference, the term named in the problem, the explicit formula, and the three terms in the sequence after the last one given.**

1) 28, 128, 228, 328, ...

Find  $a_{40}$ Common Difference:  $d = 100$ 

Next 3 terms: 428, 528, 628

$a_{40} = 3928$

Explicit:  $a_n = -72 + 100n$

2) -2, -32, -62, -92, ...

Find  $a_{20}$ Common Difference:  $d = -30$ 

Next 3 terms: -122, -152, -182

$a_{20} = -572$

Explicit:  $a_n = 28 - 30n$

**Given the second term and the common difference of an arithmetic sequence find the term named in the problem and the explicit formula.**

3)  $a_2 = 25, d = -6$

Find  $a_{20}$ 

$a_{20} = -83$

Explicit:  $a_n = 37 - 6n$

4)  $a_2 = -15, d = -4$

Find  $a_{27}$ 

$a_{27} = -115$

Explicit:  $a_n = -7 - 4n$

**Given a term in an arithmetic sequence and the common difference find the term named in the problem and the explicit formula.**

5)  $a_{27} = -21, d = -2$

Find  $a_{34}$ 

$a_{34} = -35$

Explicit:  $a_n = 33 - 2n$

6)  $a_{39} = 311, d = 8$

Find  $a_{34}$ 

$a_{34} = 271$

Explicit:  $a_n = -1 + 8n$

**Given two terms in an arithmetic sequence find the common difference, the term named in the problem, and the explicit formula.**

7)  $a_{20} = -160$  and  $a_{40} = -360$

Find  $a_{27}$ Common Difference:  $d = -10$ 

$a_{27} = -230$

Explicit:  $a_n = 40 - 10n$

8)  $a_{12} = 63$  and  $a_{31} = 196$

Find  $a_{34}$ Common Difference:  $d = 7$ 

$a_{34} = 217$

Explicit:  $a_n = -21 + 7n$

**Find the common ratio, the term named in the problem, the explicit formula, and the three terms in the sequence after the last one given.**

9) 2, -10, 50, -250, ...

Find  $a_9$

Common Ratio:  $r = -5$

Next 3 terms: 1250, -6250, 31250

$a_9 = 781250$

Explicit:  $a_n = 2 \cdot (-5)^{n-1}$

10) -3, 6, -12, 24, ...

Find  $a_{11}$

Common Ratio:  $r = -2$

Next 3 terms: -48, 96, -192

$a_{11} = -3072$

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

**Given the first term and the common ratio of a geometric sequence find the term named in the problem, the explicit formula, and the three terms in the sequence after the last one given.**

11)  $a_1 = -3, r = 3$

Find  $a_9$

Next 3 terms: -9, -27, -81

$a_9 = -19683$

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

12)  $a_1 = -1, r = 3$

Find  $a_{10}$

Next 3 terms: -3, -9, -27

$a_{10} = -19683$

Explicit:  $a_n = -3^{n-1}$

**Given a term in a geometric sequence and the common ratio find the term named in the problem, the explicit formula, and the three terms in the sequence after the last one given.**

13)  $a_4 = -192, r = 4$

Find  $a_{10}$

Next 3 terms: -768, -3072, -12288

$a_{10} = -786432$

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

14)  $a_6 = -2048, r = 4$

Find  $a_{10}$

Next 3 terms: -8192, -32768, -131072

$a_{10} = -524288$

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

**Given two terms in a geometric sequence find the common ratio, the term named in the problem, and the explicit formula.**

15)  $a_1 = -3$  and  $a_4 = -81$

Find  $a_{10}$

Common Ratio:  $r = 3$

$a_{10} = -59049$

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

16)  $a_2 = -4$  and  $a_3 = -8$

Find  $a_{12}$

Common Ratio:  $r = 2$

$a_{12} = -4096$

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