

NAME: \_\_\_\_\_

*P.I. A2.A.29: Identify an arithmetic and geometric sequence and find the formula for its  $n^{\text{th}}$  term*

1. Find  $a_n$  of the arithmetic sequence if the first term is 3 and the common difference is  $-0.4$ .

[A]  $a_n = 3.4 - 0.4n$       [B]  $a_n = 2.6 + 0.4n$

[C]  $a_n = 3 - 0.4n$       [D]  $a_n = 3.4 + 0.4n$

2. Find  $a_n$  of the arithmetic sequence if the first term is 3 and the common difference is  $-0.6$ .

[A]  $a_n = 3.6 - 0.6n$       [B]  $a_n = 3 - 0.6n$

[C]  $a_n = 3.6 + 0.6n$       [D]  $a_n = 2.4 + 0.6n$

3. Find  $a_n$  of the arithmetic sequence if the first term is 6 and the common difference is  $-0.3$ .

[A]  $a_n = 6 - 0.3n$       [B]  $a_n = 5.7 + 0.3n$

[C]  $a_n = 6.3 + 0.3n$       [D]  $a_n = 6.3 - 0.3n$

4. Find an expression for the  $n$ th term of the arithmetic sequence with  $d = -\frac{1}{2}$  and

$a_{10} = 23$ . Write your answer in the form

$a_1, a_2, a_3, \dots, a_n, \dots$

[A]  $27\frac{1}{2}, 27, 26\frac{1}{2}, \dots, 27\frac{1}{2} - \frac{1}{2}(n-1), \dots$

[B]  $27\frac{1}{2}, 27, 26\frac{1}{2}, \dots, 28 - \frac{1}{2}(n+1), \dots$

[C]  $27, 26\frac{1}{2}, 26, \dots, 27\frac{1}{2} - \frac{1}{2}(n-1), \dots$

[D]  $28, 27\frac{1}{2}, 27, \dots, 28 - \frac{1}{2}(n+1), \dots$

5. Find an expression for the  $n$ th term of the arithmetic sequence with  $d = 3$  and  $a_9 = 22$ .

Write your answer in the form

$a_1, a_2, a_3, \dots, a_n, \dots$

[A]  $1, 4, 7, \dots, -2 + 3(n-1), \dots$

[B]  $-2, 1, 4, \dots, -2 + 3(n-1), \dots$

[C]  $-5, -2, 1, \dots, -5 + 3(n+1), \dots$

[D]  $-2, 1, 4, \dots, -5 + 3(n+1), \dots$

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6. Find an expression for the  $n$ th term of the arithmetic sequence with  $d = -\frac{1}{3}$  and  $a_9 = 29$ . Write your answer in the form  $a_1, a_2, a_3, \dots, a_n, \dots$

[A]  $31\frac{2}{3}, 31\frac{1}{3}, 31, \dots, 31\frac{2}{3} - \frac{1}{3}(n-1), \dots$

[B]  $31\frac{1}{3}, 31, 30\frac{2}{3}, \dots, 31\frac{2}{3} - \frac{1}{3}(n-1), \dots$

[C]  $32, 31\frac{2}{3}, 31\frac{1}{3}, \dots, 32 - \frac{1}{3}(n+1), \dots$

[D]  $31\frac{2}{3}, 31\frac{1}{3}, 31, \dots, 32 - \frac{1}{3}(n+1), \dots$

9. Find  $a_n$  for the sequence:  $27, 9, 3, 1, \dots$

10. Find  $a_n$  for the sequence:  $16, 4, 1, \frac{1}{4}, \dots$

7. Find  $a_n$  for the sequence:  $27, 9, 3, 1, \dots$

8. Find  $a_n$  for the sequence:  $32, 16, 8, 4, \dots$

[1] C

[2] B

[3] A

[4] A

[5] B

[6] A

[7]  $27\left(\frac{1}{3}\right)^{n-1}$   
\_\_\_\_\_

[8]  $32\left(\frac{1}{2}\right)^{n-1}$   
\_\_\_\_\_

[9]  $27\left(\frac{1}{3}\right)^{n-1}$   
\_\_\_\_\_

[10]  $16\left(\frac{1}{4}\right)^{n-1}$   
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