

A2.A.32: Sequences: Determine a specified term of an arithmetic or geometric sequence

- 1 What is the fifteenth term of the sequence
 $5, -10, 20, -40, 80, \dots$?
 - 1) $-163,840$
 - 2) $-81,920$
 - 3) $81,920$
 - 4) $327,680$

- 2 What is the fifteenth term of the geometric
sequence $-\sqrt{5}, \sqrt{10}, -2\sqrt{5}, \dots$?
 - 1) $-128\sqrt{5}$
 - 2) $128\sqrt{10}$
 - 3) $-16384\sqrt{5}$
 - 4) $16384\sqrt{10}$

- 3 An arithmetic sequence has a first term of 10 and a
sixth term of 40. What is the 20th term of this
sequence?
 - 1) 105
 - 2) 110
 - 3) 124
 - 4) 130

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Answer Section

1 ANS: 3

$$a_n = 5(-2)^{n-1}$$

$$a_{15} = 5(-2)^{15-1} = 81,920$$

REF: 011105a2

2 ANS: 1

$$a_n = -\sqrt{5}(-\sqrt{2})^{n-1}$$

$$a_{15} = -\sqrt{5}(-\sqrt{2})^{15-1} = -\sqrt{5}(-\sqrt{2})^{14} = -\sqrt{5} \cdot 2^7 = -128\sqrt{5}$$

REF: 061109a2

3 ANS: 3

$$\frac{40-10}{6-1} = \frac{30}{5} = 6 \quad a_n = 6n + 4$$

$$a_{20} = 6(20) + 4 = 124$$

REF: 081510a2