

106 Sequences

A10

49. The first 3 terms of a geometric sequence are 4, 10, and 25. What is the next term in the sequence?
- A. 35
B. 40
C. 55
D. 62.5
E. 70

D10

37. The first 3 terms of an arithmetic sequence are $2\frac{1}{6}$, $3\frac{1}{3}$, and $4\frac{1}{2}$, in that order. What is the fourth term of the sequence?
- A. $4\frac{5}{6}$
B. $5\frac{1}{6}$
C. $5\frac{1}{3}$
D. $5\frac{2}{3}$
E. 6

A11

23. How many terms are there between 13 and 37, exclusive of 13 and 37, in the arithmetic sequence below?
- 4, 7, 10, 13, ..., 37
- A. 0
B. 7
C. 8
D. 28
E. 36

J11

2. The 1st term in the geometric sequence below is -4 . If it can be determined, what is the 6th term?
- $-4, 8, -16, 32, -64, \dots$
- F. 128
G. 96
H. -96
J. -128
K. Cannot be determined from the given information

D11

44. What is the 135th digit to the right of the decimal point in the repeating decimal $0.\overline{428571}$?
- F. 1
G. 2
H. 5
J. 7
K. 8

A12

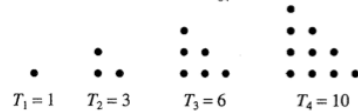
33. What is the 7th term of the geometric sequence 1, -2 , 4 , -8 , ...?
- A. -32
B. -10
C. 16
D. 56
E. 64

J12

10. The 1st term in the geometric sequence below is -6 . If it can be determined, what is the 6th term?
- $-6, 12, -24, 48, -96, \dots$
- F. 192
G. 144
H. -144
J. -192
K. Cannot be determined from the given information

D12

58. For any integer $n > 0$, the triangular number T_n is the number of dots in a triangular array with n points on each side. The figure below shows the first 4 triangular numbers. What is the value of T_{64} ?



- F. 189
G. 192
H. 2,016
J. 2,048
K. 2,080

A13

59. Consecutive terms of a certain arithmetic sequence have a positive common difference. The sum of the first 3 terms of the sequence is 120. Which of the following values CANNOT be the first term of the arithmetic sequence?
- A. 20
B. 24
C. 30
D. 39
E. 44

J13

34. The sum of a sequence of consecutive odd numbers, where the smallest term is 1, is always a perfect square. For example, $1 + 3 = 2^2$ and $1 + 3 + 5 + 7 = 4^2$. One of the sequences described above has a sum of 144. What is the largest odd number in the sequence?
- F. 11
G. 13
H. 15
J. 23
K. 73

D13

50. A *geometric sequence* is a sequence of numbers in which each term is multiplied by a constant to obtain the following term. What is the 4th term in the geometric sequence with first 3 terms 4, 6, and 9?
- F. 10.5
G. 12
H. 13
J. 13.5
K. 15

A14

59. The sum of the first 30 positive integers is 465. Which of the following is the sum of the first 60 positive integers?
- A. 465^2
B. 930
C. 1,395
D. 1,830
E. 12,865

J14

5. The first term is 1 in the geometric sequence 1, -3, 9, -27, ... What is the SEVENTH term of the geometric sequence?
- A. -243
 - B. -30
 - C. 81
 - D. 189
 - E. 729

A15

50. What is the sixth term of the geometric sequence whose second term is -4 and whose fifth term is 32 ?
- F. -128
 - G. -64
 - H. 44
 - J. 128
 - K. 256

J15

57. A finite arithmetic sequence has 7 terms, and the first term is $\frac{3}{4}$. What is the difference between the mean and the median of the 7 terms?
- A. 0
 - B. $\frac{3}{4}$
 - C. $\frac{4}{3}$
 - D. 3
 - E. 4