

College Algebra – Sequences & Series

27. In a certain number sequence, each element after the 1st element is the result of multiplying the previous element by 3 and adding 2 to that product. The 3rd element in the sequence is 53. What is the 1st element?

- A. 1
- B. 5
- C. 7
- D. 17
- E. 47

60. The sum of an infinite geometric series with first term a and common ratio $r < 1$ is given by $\frac{a}{1-r}$. The sum of a given infinite geometric series is 200, and the common ratio is 0.15. What is the second term of this series?

- F. 25.5
- G. 30
- H. 169.85
- J. 170
- K. 199.85

34. The first term of an arithmetic sequence is 1. The common difference of the sequence is 2. What is the sum of the first 15 terms of this sequence?

- F. 29
- G. 64
- H. 210
- J. 225
- K. 450

49. Right after graduating from college, Consuelo was offered a job. The job pays a starting salary of \$40,000 per year. Consuelo computed what her salary would be each year for 10 years if she earned a 5% raise each year. Which of the following best describes the sequence formed by these salaries?

- A. Arithmetic with a common difference of 5
- B. Arithmetic with a common difference of 40,000
- C. Geometric with a common ratio of 1.05
- D. Geometric with a common ratio of 5
- E. Geometric with a common ratio of 40,000

3. On the first day of school, Mr. Vilani gave his third-grade students 5 new words to spell. On each day of school after that, he gave the students 3 new words to spell. In the first 20 days of school, how many new words had he given the students to spell?

- A. 28
- B. 62
- C. 65
- D. 68
- E. 152

52. In a geometric sequence where the 1st term is 2 and the ratio is -2 , what is the 6th term?

- F. -64
- G. -32
- H. -8
- J. $-\frac{1}{8}$
- K. $-\frac{1}{16}$

59. In an arithmetic series, the terms of the series are equally spread out. For example, in $1 + 5 + 9 + 13 + 17$, consecutive terms are 4 apart. If the first term in an arithmetic series is 3, the last term is 136, and the sum is 1,390, what are the first 3 terms?

- A. 3, 10, 17
- B. 3, 23, 43
- C. 3, $36\frac{1}{3}$, 70
- D. 3, $69\frac{1}{2}$, 136
- E. 3, 139, 1,251

53. The first and second terms of a geometric sequence are n and an , in that order. What is the 1,000th term of the sequence?

- A. $a^{999}n$
- B. $a^{1,000}n$
- C. $a^{1,001}n$
- D. $(an)^{999}$
- E. $(an)^{1,000}$

37. Which of the following statements is NOT true about the arithmetic sequence 17, 12, 7, 2, ... ?

- A. The fifth term is -3.
- B. The sum of the first 5 terms is 35.
- C. The eighth term is -18.
- D. The common difference of consecutive terms is -5.
- E. The common ratio of consecutive terms is -5.