

Sequences and Series Review Key

- Express the series $-27 + 9 - 3 + 1 - \dots$ using sigma notation.
1. $\sum_{n=0}^{\infty} -27 \left(-\frac{1}{3}\right)^n$
- Find the next two terms of the sequence $14, -5, -24, \dots$.
2. $-43, -62$
- Find the next term in the sequence $\sqrt{2}b^4, -2b^8, 2\sqrt{2}b^{12}, \dots$.
3. $-4b^{16}$
- The eighth term in the Fibonacci sequence $1, 1, 2, 3, 5, \dots$ is ____.
4. 21
- Find the 21st term in the arithmetic sequence $9, 3, -3, \dots$.
5. -111
- In an arithmetic sequence, what is d if a_1 is -11 and $a_{51} = 59$?
6. 1.4
- Find the sum of the first 20 terms in the arithmetic series $-6 - 12 - 18 - \dots$.
7. -1260
- SALARY** An employee's salary increases by the same amount each year. If he earned \$61,325 for the sixth year and \$87,000 for the nineteenth year, how much was his pay for the second year?
8. \$53,425
- Write $\sum_{k=0}^3 \left(-\frac{1}{2}\right)^k$ in expanded form and then find the sum.
9. $1 - \frac{1}{2} + \frac{1}{4} - \frac{1}{8} + \frac{5}{8}$
- Which are the two geometric means between 192 and 0.375?
10. 24, 3
- Find the sum of $\frac{5}{2} - \frac{10}{14} + \frac{20}{98} - \dots$.
11. $\frac{35}{18}$

Sequences and Series Review *(continued)*

12. The _____ is a well-known recursive sequence that describes many patterns of numbers found in nature. **12. Fibonacci Sequence**
13. If a sequence has a limit such that the terms approach a unique number, then it is said to _____. **13. Converge**
14. What is the fourth term in the expansion $(2x - 5y)^4$? **14. $-1000xy^3$**
15. The expression $81p^4 + 216p^3r + 216p^2r^2 + 96pr^3 + 16r^4$ is the expansion of which binomial? **15. $(3p + 2r)^4$**
16. A(n) _____ gives a_n as a function of n and does not require any previous terms. **16. Explicit Formula**
17. The _____ are terms between two known, nonconsecutive terms of a geometric sequence. **17. Geometric means**
18. The coefficients of the expansion of $(a + b)^n$ are called _____. **18. Binomial Coefficients**
19. A(n) _____ is the sum of all of the terms of a finite or an infinite sequence **19. Infinite Series**
20. Find the interval on which the power series $f(x) = \frac{4}{8 - 3x}$ converges **20. $0 < x < \frac{8}{3}$**

Bonus Solve $\sum_{n=0}^6 (3n - 2x) = 7$ for x .

B: 4