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Chapter 10 Quiz Review

For each of the following sequences, determine the next 3 terms in the sequence.

1) 2, -2, 2, -2, …

2) 100, 90, 80, 70, …

3) 3, -9, 27, -81, …

4) 80, 40, 20, 10, …

5) 2, 5, 10, 17, …

6) 1, 5, 9, 13, …

Determine the first four terms of the following sequences.

7) $a_1 = 10$ and $a_n = 2a_{n-1} - 5$

8) $a_n = n - \frac{1}{n}$

9) $a_n = 2n + 3$

10) $a_n = 5^n$

11) $a_1 = 5;\ a_2 = 8;\ a_n = a_{n-1} + a_{n-2}$

12) Which of the sequences above are arithmetic sequences?

13) Determine the value of x in the arithmetic sequence 1, 5, $2x$+3, …

Determine whether each sequence is convergent or divergent.

14) 3, 5, 8, 12, …

15) 48, 24, 12, 6, …

16) $a_1 = 15,\ a_n = \frac{a_{n-1} - 1}{3}$

17) $a_n = n^2 + 5n$

18) Determine 4 arithmetic means between 27 and 49.

Evaluate.

19) $\sum_{k=1}^{5} 2k-1$

20) $\sum_{k=1}^{4} 3\cdot 2^{k-1}$

21) $\sum_{n=0}^{8} \frac{n^2}{2}$

22) $\sum_{n=2}^{6} \left(2^n-4\right)$

Write an explicit formula and a recursive formula for the nth term of the arithmetic sequence.

23) -11, -15, -19, -23, …

24) -96, -84, -72, -60, …

25) 7, 10, 13, 16, …

26) 32, 30, 28, 26, …

27) Determine the sum of all positive 3-digit numbers whose last digit is 3.

28) Determine the sum of all multiples of 4 between 1 and 500 inclusive.