Algebra II Worksheet #5 Unit 9 Selected Homework Solutions

Find S_5 for each sequence described below.

2. $a_n = 2^n$

$S_5 = 2^1 + 2^2 + 2^3 + 2^4 + 2^5$

$S_5 = 2 + 4 + 8 + 16 + 32$

$S_5 = 62$

4. $a_n = 2(3)^{n-1}$

$S_5 = [2(3)^0] + 2(3)^1] + [2(3)^2] + [2(3)^3] + [2(3)^4]$

$S_5 = 2 + 6 + 18 + 54 + 162$

$S_5 = 242$

6. $a_{n+1} = .5a_n$; $a_1 = 4$

$S_5 = 4 + 2 + 1 + 0.5 + 0.25$

$S_5 = 7.75$

8. $a_{n+1} = .1a_n$; $a_1 = .3$

$S_5 = 0.3 + 0.03 + 0.003 + 0.0003 + 0.00003$

$S_5 = 0.33333$

Evaluate each of the following sums.

10. $\sum_{i=1}^{3} 2^i = 2^1 + 2^2 + 2^3$

$= 2 + 4 + 8 = 14$

12. $\sum_{k=3}^{6} (2k + 1) = [2(3) + 1] + [2(4) + 1] + [2(5) + 1] + [2(6) + 1]$

$= 7 + 9 + 11 + 13 = 40$

14. $\sum_{j=1}^{100} j = 1 + 2 + 3 + \ldots + 98 + 99 + 100$

$= (50)(101) = 5050$