

Honors Math Analysis – Sullivan & Sullivan

Chapter 12

Section	Activities/Resources	Assignment
12.1		21, 25, 27, 29, 35, 39, 44, 46, 49, 51, 56
12.1	#75 in-class	59, 62, 66, 68, 74
financial		Worksheet – buying a car
12.2	Arithmetic	4, 7, 14, 18, 19, 21, 24, 28, 29, 33, 39, 41, 47, 49, 54
12.3	Geometric	4, 7, 14, 17, 20, 28, 30
12.3		39, 41, 45, 48, 51, 56, 59, 61, 68
	Telescoping Series	Finish worksheet & 12.4 pre-reading assignment
12.4		1, 4, 7, 10, 14, 19 & \sum Extra Practice
12.4	Quiz 12.1 to 12.3 You're DA Coach (12.4)	2, 5, 9, 12
12.5	The Binomial Theorem	1, 4, 7, 10, 13, 17, 20, 25, 28, 35, 38, 40
Review	Review worksheet	2, 12, 16, 24, 26, 28, 36, 42, 46, 58, 62
Review		3, 7, 13, 15, 23, 25, 27, 35, 41, 47, 57, 61, 63
	Chapter 12 Test	

12.1 44.) $\sum_{k=1}^4 (-1)^k 3^k = 60$ 46.) $\sum_{k=0}^3 (k^3 + 2) = 44$

56.) $\sum_{k=3}^n (-1)^{k+1} 2^k = (-1)^4 2^3 + (-1)^5 2^4 + \dots + (-1)^{n+1} 2^n$ 62.) $\sum_{k=1}^{11} (-1)^{k+1} \left(\frac{2}{3}\right)^k$ 66.) $\sum_{k=1}^n ar^{k-1}$

68.) a.) $B_1 = \$18,058.03$ b.) $\$9713.76$ c.) $\$20,364.04$ d.) $\$1864.04$

74.) a.) $a_1=0, a_n=1.005a_{n-1} + 45$ b.) in 74th month (7th year) it is $\$4,017.60$. c.) $\$14,449$

12.2 4.) $d = 3, a_1 = 4, a_2 = 7, a_3 = 10, a_4 = 13$ 14.) $a_n = 8 - 2n, a_5 = -2$ 18.) $a_n = \pi n - \pi, a_5 = 4\pi$

24.) $a_1 = 2\sqrt{5}, d = 2\sqrt{5}, a_n = a + (n-1)d, a_7 = 14\sqrt{5}$ 28.) $a_8 = a + 7d = 4, a_{18} = a + 17d = -96, a = 74, a_1 = 74, a_n = a_{n-1} - 10$

54.) $a_1 = 35,000, d = 1400, S_n = 280,000, n^2 + 49n - 400 = 0, n = 7.13$ years

12.3 48.) 28,697,812 56.) $a = 1, r = -\frac{3}{4}, S_n = \frac{4}{7}$ 68.) a.) $a_3 = 15.36$ ft b.) $a_n = 24(8)^{n-1}$, c.) 18.35

d.) $S = 120$ upward bounce, $S = 150$ downward motion, Total 270 feet

12.4 4.) I. 3, II. If $k(k+1)$ then $(k+1)(k+3)$ 10.) I. 1 II. If $\frac{1}{4}(5^k - 1)$, then $\frac{1}{4}(5^{k+1} - 1)$

12.) I. $\frac{1}{3}$ II. If $\frac{k}{2k+1}$, then $\frac{k+1}{2k+3}$

14.) I. 1 II. If $\frac{1}{4}k^2(k+1)^2$, then $\frac{1}{4}(k+1)^2(k+2)^2$

\sum Extra Practice Worksheet: 1) 550

2) 174,590

3) 271,216

4) $\sum_{k=1}^{100} (2k-1)(2k) = 1,343,300$

5) $\sum_{k=1}^{20} k(k+1)(k+2) = 53,130$

12.5 4.) $\binom{9}{7} = 36$ 10.) $\binom{60}{20} = 4.191844506 \times 10^{15}$ 20.) $x^{12} - 6x^{10}y^2 + 15x^8y^4 - 20x^4y^8 + 15x^4y^8 - 6x^2y^{10} + y^{12}$

28.) $n = 12, j = 9, x = 2x, a = 1, \binom{12}{9}(2x)^3(1)^9 = 1760x^3$ 38.) x^2 occurs when $j = 2; \binom{8}{2}(\sqrt{x})^6\left(\frac{3}{\sqrt{x}}\right)^2 = 252x^2$

40.) $(0.998)^6 = (1 - 0.002)^6 = .98806$

Review 2.) $a_1 = 5, a_2 = -7, a_3 = 9, a_4 = -11, a_5 = 13$

12.) neither

16.) arithmetic, $d = -4, S_n = 3n - 2n^2$

24.) -18

26.) 682

28.) $a_8 = -13$

36.) $2n + 6$

42.) $\frac{12}{7}$

58.) 360

62.) $a_5 = 20000(1.04)^{5-1} = \$23,397.17$