

Cumulative Review Test 1, page 205

1. (a) $t_1 = -2, t_2 = 0, t_3 = 6, t_4 = 16$
 (b) $t_{15} = 390$
 (c) nonlinear with points (term number, term value) at $\{(1, -2), (2, 0), (3, 6), (4, 16), (5, 30), (6, 48), (7, 70), (8, 96)\}$
 (d) $t_{22} = 880$
2. (a) 50 000, 52 000, 54 000, 56 000, 58 000
 (b) $t_n = a + (n - 1)d$ (c) 68 000
 (d) \$1 380 000
3. (a) $t_n = (-18)3^{n-1}, t_{15} = -860\,934\,42, S_{25} = -7.626 \times 10^{12}$
 (b) $t_n = 30 + (n - 1)(-4), t_{15} = -26, S_{25} = -450$
4. (a) 62 (b) 11
5. (a) \$15 227.83 (b) \$6249.59
6. (a) 125 (b) 0.11
 (c) 10.99 (d) 92.64
7. (a) $-15x^2$ (b) $\frac{9x^8}{14}$
8. (a) $x = \frac{-7}{3}$ (b) $x = -5$ or $x = 0.5$
9. 4.5 a
10. (a)

Pay. #	Pay.	Int.	Prin.	Bal.
0				4800.00
1	220	60.00	160.00	4640.00
2	220	58.00	162.00	4478.00
3	220	55.98	164.02	4313.98
4	220	53.92	166.08	4147.90
5	220	51.85	168.15	3979.75
6	220	49.75	170.25	3809.50

- (c) 26 months; final payment: \$138.34
 (d) \$5638.34 (e) \$427.89
11. (a) n years, each divided into 12 segments. Amount of each payment, proceeding from most recent to first: 450, $450(1.0067)^1, 450(1.0067)^2, \dots, 450(1.0067)^{n-2}, 450(1.0067)^{n-1}$
 (b) $10\,000 = 450[(1.0067) + (1.0067)^2 + (1.0067)^3 + \dots + (1.0067)^n]$
 (c) 21 months
12. (a) 4 years, each divided into 12 segments. Amount of each payment (R) proceeding from most recent to first: $R, R(1.0125)^1, R(1.0125)^2, \dots, R(1.0125)^{47}$
 (b) $4600 = \frac{x}{1.15} + \frac{x}{1.15^2} + \frac{x}{1.15^3} + \dots + \frac{x}{1.15^{48}}$
 (c) \$125.84
13. (a) just over 13 years (b) \$250 297.14 (c) \$67 378.69
- 14U. $t_1 = -5, t_2 = 23, t_3 = -61, t_4 = 191, t_5 = -565, t_6 = 1703$
- 15U. (a) $a_n = 0.32(a_{n-1}) + 350$
 (b) 514.7 mg (c) 54 h