

- 999.33

- (d) After 37 payments or 3 years and 1 month later
- (e) After 278 payments of \$999.33, plus last payment of \$353.69(1.005) = \$355.46
- (f) \$128,169.20

$A_0 = 120,000$

- (d) After 129 payments or 10 years and 9 months later
- (e) After 359 monthly payments of \$758.48, plus last payment of \$760.28
- (f) \$153,054.60

8.48, $A_0 = 120,000$

- (d) After 78 payments or 6 years and 6 months later
- (e) After 261 payments of \$858.48, plus last payment of \$855.84
- (f) \$104,919.12

93. Fibonacci sequence

94. (a) 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89

(b) $1, 2, \frac{3}{2}, \frac{5}{3}, \frac{8}{5}, \frac{13}{8}, \frac{21}{13}, \frac{34}{21}, \frac{55}{34}, \frac{89}{55}$ (c) $\frac{1 + \sqrt{5}}{2}$

(d) $1, \frac{1}{2}, \frac{2}{3}, \frac{3}{5}, \frac{5}{8}, \frac{8}{13}, \frac{13}{21}, \frac{21}{34}, \frac{34}{55}, \frac{55}{89}$ (e) $\frac{2}{1 + \sqrt{5}}$

95. (a) 3.630170833 (b) 3.669060828 (c) 3.669296668 (d) 12

96. (a) -0.824 (b) 0.1602688 (c) 0.0907179533 (d) 17

97. (a) $a_1 = 0.4; a_2 = 0.7; a_3 = 1; a_4 = 1.6; a_5 = 2.8; a_6 = 5.2; a_7 = 10; a_8 = 19.6$

(b) Except for term 5, which has no match, Bode's formula provides excellent approximations for the mean distances of the planets from the sun.

(c) The mean distance of Ceres from the sun is approximated by $a_5 = 2.8$ and that of Uranus is $a_8 = 19.6$.

(d) $a_9 = 38.8; a_{10} = 77.2$

(e) Pluto's distance is approximated by a_9 , but no term approximates Neptune's mean distance from the sun.

(f) According to Bode's Law, the mean orbital distance of 2003 UB 313 will be 154 AU from the sun.

98. $a_0 = 2; a_5 = 2.236067977; 2.236067977$

99. $a_0 = 3; a_5 = 2.828427125; 2.828427125$

100. $a_0 = 4; a_5 = 4.582575695; 4.582575695$

101. $a_0 = 9; a_5 = 9.433981132; 9.433981132$

102. $2S = \underbrace{(1 + n) + (1 + n) + \dots + (n + 1)}_{n \text{ terms}} = n(n + 1)$

$2S = n(n + 1)$

$S = \frac{1}{2}n(n + 1)$

$= 1 = u_2$

6. $b_n - b_{n-1}$
 $d = 3;$

7. $c_n - c_{n-1}$
 $d = -$

8. $d_n - d_{n-1}$
 $d = -$

9. $t_n - t_{n-1}$
 $d = -$

10. $t_n - t_{n-1}$
 $d = -$

11. $s_n - s_{n-1}$
 $d = -$

12. $s_n - s_{n-1}$
 $d = -$

14. $a_n - a_{n-1}$

19. $a_n - a_{n-1}$

26. $140 \sqrt{5}$

29. $a_1 =$

31. $a_1 =$

33. $a_1 =$

38. $n(2n - 1)$

51. $15, 90$

60. (a)

63. The

Histori

1. $1 \frac{2}{3}$ lo

12.3 A

1. geon

8. $\frac{s_n}{s_{n-1}}$

9. $\frac{a_n}{a_{n-1}}$

10. $\frac{b}{b_n}$

11. $\frac{c}{c_n}$