

Practise, Apply, Solve 2.8, page 163

1. (a) 0.463 193 (b) 0.506 631 (c) 0.491 934
(d) 0.741 372 (e) 0.235 413 (f) 0.096 142
2. (a) 898.47 (b) 11 997.96
(c) 23 165.20 (d) 87 057.00
3. (a) 1098.30 (b) 159 958.35 (c) 12 474.91
4. (a) \$7339.45, \$6733.44, \$6177.47, \$5667.40, \$5199.45, \$4770.14, \$4376.27, $P = 8000(1.09)^{-7} + 8000(1.09)^{-6} + \dots + 8000(1.09)^{-2} + 8000(1.09)^{-1}$, \$40 263.62
(b) \$288.46, \$277.37, \$266.70, \$256.44, \$246.58, \$237.09, \$227.98, $P = 300(1.04)^{-7} + 300(1.04)^{-6} + \dots + 300(1.04)^{-2} + 300(1.04)^{-1}$, \$1800.62
(c) \$735.29, \$720.88, \$706.74, \$692.88, \$679.30, \$665.98, \$652.92, \$640.12, $P = 750(1.02)^{-8} + 750(1.02)^{-7} + \dots + 750(1.02)^{-2} + 750(1.02)^{-1}$, \$5494.11
5. (a) 3 years, each divided into 4 segments. Present value of each payment, proceeding from most recent to first: $1200(1.0225)^{-11}$, $1200(1.0225)^{-10}$, $1200(1.0225)^{-9}$, ..., 1200
(b) annuity due
(c) $P = 1200(1.0225)^{-11} + 1200(1.0225)^{-10} + \dots + 200(1.0225)^{-1} + 1200$
(d) \$12 778.93
6. (a) 11 years, with no divisions. Present value of each payment, proceeding from most recent to first: $8000(1.07)^{-11}$, $8000(1.07)^{-10}$, $8000(1.07)^{-9}$, ..., $8000(1.07)^{-1}$;
 $P = 8000(1.07)^{-11} + 8000(1.07)^{-10} + \dots + 8000(1.07)^{-1}$, \$59 989.39
(b) 6 years, each divided into 4 segments. Present value of each payment, proceeding from most recent to first: $650(1.02)^{-24}$, $650(1.02)^{-23}$, $650(1.02)^{-22}$, ..., $650(1.02)^{-1}$;
 $P = 650(1.02)^{-24} + 650(1.02)^{-23} + \dots + 650(1.02)^{-1}$, \$12 294.05
(c) 3 years, each divided into 52 segments. Present value of each payment, proceeding from most recent to first: $60(1.25)^{-156}$, $60(1.25)^{-155}$, $60(1.25)^{-154}$, ..., $60(1.25)^{-1}$
 $P = 60(1.25)^{-156} + 60(1.25)^{-155} + \dots + 60(1.25)^{-1}$, \$7742.72
- (d) 8 years, each divided into 2 segments. Present value of each payment, proceeding from most recent to first:
 $3800(1.0325)^{-16}$, $3800(1.0325)^{-15}$, $3800(1.0325)^{-14}$, ..., $3800(1.0325)^{-1}$
 $P = 3800(1.0325)^{-16} + 3800(1.0325)^{-15} + \dots + 3800(1.0325)^{-1}$, \$46 832.56
7. (a) \$13 728.16 (b) \$14 757.77
(c) \$11 050.63
8. (a) 4 years, each divided into 4 segments. Present value of each payment (R) proceeding from most recent to first:
 $R(1.025)^{-16}$, $R(1.025)^{-15}$, $R(1.025)^{-14}$, ..., $R(1.025)^{-1}$
(b) $P = R(1.025)^{-16} + R(1.025)^{-15} + \dots + R(1.025)^{-1}$
(c) \$574.49
9. \$8702.34
10. \$14 877.47
11. (a) \$418.89 (b) \$31.11
12. (a) \$389.47 (b) \$23 368.36
(c) monthly bank payment \$386.68; he should choose the bank option
13. (a) \$961.63 (b) \$108.37
14. (a) 7-year term: $a = \$1029.70$; 10-year term: $a = \$810.72$
(b) \$10 791.60
(c) Example: other expense, affordability, down payment, taxes
15. The payment using the dealer's special rate is \$566.51, while using the bank loan is \$552.60.
16. \$4282.71
17. The variable i appears twice in the present value formulas, so it is not possible to isolate and solve for i .
18. (a) \$3210.47 (b) \$4987.47
19. (a) present value of \$1000/week for 25 years is \$627 136.80; take cash
(b) 1502 weeks or 28.9 years
20. Answers will vary.
21. (a) \$20 516.61 (b) Answers will vary.
22. 63 months
23. 31 months by increasing last payment slightly