

CM1 Chapter 1: The Time Value of Money

1. An investor deposits £1,000 in an account paying 5% simple interest per annum. What is the accumulated value after 2 years?
 - A. £1,100
 - B. £1,050
 - C. £1,102.50
 - D. £1,200
2. What is the present value of £2,000 due in 1 year at a simple discount rate of 4% per annum?
 - A. £1,920
 - B. £1,900
 - C. £1,950
 - D. £1,880
3. An investment of £3,000 earns 6% compound interest per annum. What is the accumulated value after 1 year?
 - A. £3,180
 - B. £3,200
 - C. £3,150
 - D. £3,100
4. What is the present value of £5,000 due in 1 year at a compound interest rate of 5% per annum?
 - A. £4,761.90
 - B. £4,800.00
 - C. £4,900.00
 - D. £4,500.00

5. What is the accumulated value of £2,500 after 3 years at 4% simple interest per annum?
- A. £2,800
 - B. £2,850
 - C. £2,750
 - D. £2,900
6. What is the present value of £4,000 due in 2 years at a compound discount rate of 3% per annum?
- A. £3,770.07
 - B. £3,800.00
 - C. £3,850.00
 - D. £3,700.00
7. An investor deposits £1,500 in an account paying 7% simple interest per annum. What is the accumulated value after 2 years?
- A. £1,710
 - B. £1,700
 - C. £1,680
 - D. £1,750
8. What is the present value of £3,000 due in 1 year at a simple discount rate of 6% per annum?
- A. £2,820
 - B. £2,850
 - C. £2,800
 - D. £2,900
9. An investment of £2,000 earns 4% compound interest per annum. What is the accumulated value after 2 years?
- A. £2,163.20
 - B. £2,160.00
 - C. £2,080.00
 - D. £2,200.00

10. What is the present value of £6,000 due in 1 year at a compound interest rate of 8% per annum?
- A. £5,555.56
 - B. £5,600.00
 - C. £5,700.00
 - D. £5,500.00
11. What is the accumulated value of £1,000 after 5 years at 3% simple interest per annum?
- A. £1,150
 - B. £1,160
 - C. £1,140
 - D. £1,170
12. What is the present value of £7,000 due in 2 years at a simple discount rate of 5% per annum?
- A. £6,300
 - B. £6,500
 - C. £6,400
 - D. £6,600
13. An investor deposits £4,000 in an account paying 5% compound interest per annum. What is the accumulated value after 2 years?
- A. £4,410
 - B. £4,400
 - C. £4,200
 - D. £4,500
14. What is the present value of £8,000 due in 1 year at a compound discount rate of 4% per annum?
- A. £7,692.31
 - B. £7,700.00
 - C. £7,800.00
 - D. £7,600.00

15. What is the accumulated value of £2,000 after 3 years at 6% simple interest per annum?
- A. £2,360
 - B. £2,400
 - C. £2,350
 - D. £2,380
16. What is the present value of £5,000 due in 2 years at a compound interest rate of 3% per annum?
- A. £4,713.07
 - B. £4,800.00
 - C. £4,900.00
 - D. £4,700.00
17. An investment of £1,200 earns 5% simple interest per annum. What is the accumulated value after 4 years?
- A. £1,440
 - B. £1,460
 - C. £1,420
 - D. £1,480
18. What is the present value of £10,000 due in 1 year at a simple discount rate of 7% per annum?
- A. £9,300
 - B. £9,400
 - C. £9,200
 - D. £9,500
19. An investor deposits £3,500 in an account paying 4% compound interest per annum. What is the accumulated value after 2 years?
- A. £3,780
 - B. £3,800
 - C. £3,760
 - D. £3,740

20. What is the present value of £4,000 due in 1 year at a compound interest rate of 6% per annum?
- A. £3,773.58
 - B. £3,800.00
 - C. £3,700.00
 - D. £3,850.00
21. What is the accumulated value of £5,000 after 3 years at 5% compound interest per annum?
- A. £5,788.13
 - B. £5,800.00
 - C. £5,750.00
 - D. £5,700.00
22. What is the present value of £10,000 due in 3 years at a compound interest rate of 4% per annum?
- A. £8,879.96
 - B. £9,000.00
 - C. £8,900.00
 - D. £8,800.00
23. An investment of £2,000 grows to £2,880 in 4 years under simple interest. What is the annual interest rate?
- A. 11%
 - B. 10%
 - C. 9%
 - D. 12%
24. What is the accumulated value of £3,000 after 4 years at 6% simple interest per annum?
- A. £3,720
 - B. £3,700
 - C. £3,750
 - D. £3,680

25. What is the present value of £12,000 due in 4 years at a simple discount rate of 5% per annum?
- A. £9,600
 - B. £9,800
 - C. £10,000
 - D. £9,700
26. What is the accumulation factor for £4,000 growing to £5,200 in 3 years under simple interest?
- A. 1.30
 - B. 1.25
 - C. 1.35
 - D. 1.40
27. What is the present value of £15,000 due in 3 years at a compound discount rate of 4% per annum?
- A. £14,236.30
 - B. £14,200.00
 - C. £14,300.00
 - D. £14,000.00
28. An investment of £5,000 grows to £6,655 in 3 years under compound interest. What is the annual interest rate?
- A. 10%
 - B. 11%
 - C. 9%
 - D. 12%
29. What is the accumulated value of £2,000 after 5 years at 4% simple interest per annum?
- A. £2,400
 - B. £2,450
 - C. £2,380
 - D. £2,420

30. What is the present value of £8,000 due in 6 months at a commercial discount rate of 10% per annum?
- A. £7,600
 - B. £7,700
 - C. £7,500
 - D. £7,800
31. What is the accumulated value of £3,500 after 3 years at 5% compound interest per annum?
- A. £4,053.19
 - B. £4,000.00
 - C. £4,100.00
 - D. £4,050.00
32. What is the present value of £20,000 due in 5 years at a simple interest rate of 4% per annum?
- A. £16,666.67
 - B. £16,800.00
 - C. £16,500.00
 - D. £16,700.00
33. What is the accumulation factor for £2,500 growing to £3,250 in 5 years under simple interest?
- A. 1.30
 - B. 1.25
 - C. 1.35
 - D. 1.40
34. What is the present value of £6,000 due in 3 years at a compound interest rate of 6% per annum?
- A. £5,033.99
 - B. £5,100.00
 - C. £5,200.00
 - D. £5,000.00

35. An investment of £4,000 grows to £4,913 in 2 years under compound interest. What is the annual interest rate?
- A. 11%
 - B. 10%
 - C. 12%
 - D. 9%
36. What is the accumulated value of £7,000 after 4 years at 3% simple interest per annum?
- A. £7,840
 - B. £7,800
 - C. £7,860
 - D. £7,900
37. What is the present value of £9,000 due in 2 years at a compound discount rate of 5% per annum?
- A. £8,163.27
 - B. £8,200.00
 - C. £8,300.00
 - D. £8,100.00
38. What is the accumulated value of £1,000 after 3 years at a compound discount rate of 4% per annum?
- A. £1,125.94
 - B. £1,100.00
 - C. £1,150.00
 - D. £1,120.00
39. What is the present value of £10,000 due in 4 years at a simple interest rate of 5% per annum?
- A. £8,333.33
 - B. £8,400.00
 - C. £8,500.00
 - D. £8,200.00

40. An investment of £3,000 grows to £3,645 in 2 years under compound interest. What is the annual interest rate?
- A. 10%
 - B. 11%
 - C. 9%
 - D. 12%
41. What is the accumulated value of £5,000 after 2 years at 7% compound interest per annum?
- A. £5,714.50
 - B. £5,700.00
 - C. £5,750.00
 - D. £5,600.00
42. What is the present value of £15,000 due in 3 years at a simple discount rate of 6% per annum?
- A. £12,300
 - B. £12,500
 - C. £12,400
 - D. £12,600
43. What is the accumulation factor for £2,000 growing to £2,800 in 4 years under simple interest?
- A. 1.40
 - B. 1.35
 - C. 1.45
 - D. 1.30
44. What is the present value of £7,000 due in 5 years at a compound interest rate of 3% per annum?
- A. £6,028.28
 - B. £6,100.00
 - C. £6,200.00
 - D. £6,000.00

45. An investment of £4,000 grows to £5,120 in 2 years under compound interest. What is the annual interest rate?
- A. 13%
 - B. 12%
 - C. 14%
 - D. 11%
46. What is the accumulated value of £6,000 after 3 years at a compound discount rate of 5% per annum?
- A. £6,945.56
 - B. £6,900.00
 - C. £7,000.00
 - D. £6,800.00
47. What is the present value of £5,000 due in 4 years at a compound discount rate of 3% per annum?
- A. £4,435.91
 - B. £4,500.00
 - C. £4,400.00
 - D. £4,600.00
48. What is the accumulated value of £2,500 after 5 years at 4% simple interest per annum?
- A. £3,000
 - B. £3,050
 - C. £2,950
 - D. £3,100
49. What is the present value of £10,000 due in 6 months at a commercial discount rate of 8% per annum?
- A. £9,600
 - B. £9,700
 - C. £9,500
 - D. £9,800

50. An investment of £3,000 grows to £3,880.80 in 3 years under compound interest. What is the annual interest rate?
- A. 9%
 - B. 10%
 - C. 8%
 - D. 11%
51. What is the accumulated value of £4,000 after 2 years at a compound interest rate of 8% per annum?
- A. £4,665.60
 - B. £4,600.00
 - C. £4,700.00
 - D. £4,640.00
52. What is the present value of £12,000 due in 5 years at a simple discount rate of 4% per annum?
- A. £9,600
 - B. £9,800
 - C. £9,700
 - D. £9,900
53. What is the accumulation factor for £5,000 growing to £6,750 in 5 years under simple interest?
- A. 1.35
 - B. 1.30
 - C. 1.40
 - D. 1.25
54. What is the present value of £8,000 due in 3 years at a compound interest rate of 5% per annum?
- A. £6,898.45
 - B. £6,900.00
 - C. £7,000.00
 - D. £6,800.00

55. An investment of £2,000 grows to £2,662 in 3 years under compound interest. What is the annual interest rate?
- A. 10%
 - B. 9%
 - C. 11%
 - D. 8%
56. What is the accumulated value of £3,000 after 4 years at a compound discount rate of 3% per annum?
- A. £3,367.98
 - B. £3,400.00
 - C. £3,350.00
 - D. £3,300.00
57. What is the present value of £10,000 due in 2 years at a compound discount rate of 6% per annum?
- A. £8,876.16
 - B. £8,900.00
 - C. £8,800.00
 - D. £9,000.00
58. An investor deposits £5,000 for 6 years. If invested for 3 years at 7% simple interest and then reinvested for 3 years at 7% simple interest, what is the accumulated value?
- A. £7,351
 - B. £7,400
 - C. £7,300
 - D. £7,450
59. What is the present value of £15,000 due in 9 months at a commercial discount rate of 12% per annum?
- A. £14,250
 - B. £14,100
 - C. £14,200
 - D. £14,300

60. An investment of £4,000 grows to £5,832.24 in 3 years under compound interest. What is the annual interest rate?
- A. 13%
 - B. 14%
 - C. 12%
 - D. 15%
61. What is $A(2, 5)$ if £3,000 invested at time 0 grows to £4,500 at time 5, and $A(0, 2) = 1.25$?
- A. 1.20
 - B. 1.25
 - C. 1.30
 - D. 1.15
62. What is the effective annual interest rate equivalent to a simple interest rate of 5% per annum over 4 years?
- A. 4.77%
 - B. 4.80%
 - C. 4.90%
 - D. 4.70%
63. What is the present value of £20,000 due in 5 years at a compound discount rate of 6% per annum?
- A. £14,996.90
 - B. £15,000.00
 - C. £15,100.00
 - D. £14,900.00
64. An investor's balance grows from £5,000 to £5,400 from 1 Jan to 1 Jul, and to £5,832 by 1 Jan next year. What is the effective six-monthly interest rate for the first half of the year?
- A. 8%
 - B. 7%
 - C. 9%
 - D. 6%

65. What is the effective rate of interest for the third year under 6% simple interest per annum?
- A. 5.66%
 - B. 5.70%
 - C. 5.60%
 - D. 5.50%
66. What is the accumulated value of £2,000 after 4 years at a compound discount rate of 5% per annum?
- A. £2,332.39
 - B. £2,300.00
 - C. £2,350.00
 - D. £2,400.00
67. What is the effective annual interest rate if £1,000 grows to £1,464.10 in 4 years under compound interest?
- A. 10%
 - B. 11%
 - C. 9%
 - D. 12%
68. What is $A(3, 6)$ if £5,000 invested at time 0 grows to £7,500 at time 6, and $A(0, 3) = 1.3$?
- A. 1.1538
 - B. 1.2000
 - C. 1.1000
 - D. 1.2500
69. What is the present value of £25,000 due in 10 months at a commercial discount rate of 9% per annum?
- A. £23,875
 - B. £23,900
 - C. £23,800
 - D. £24,000

70. What is the effective two-yearly interest rate equivalent to an effective annual interest rate of 8%?
- A. 16.64%
 - B. 16.00%
 - C. 17.00%
 - D. 15.50%
71. What is the accumulated value of £3,000 after 5 years at a simple discount rate of 3% per annum?
- A. £3,529.41
 - B. £3,500.00
 - C. £3,600.00
 - D. £3,550.00
72. What is the effective annual interest rate if £2,000 grows to £2,985.98 in 5 years under compound interest?
- A. 8%
 - B. 9%
 - C. 7%
 - D. 10%
73. A 180-day treasury bill, redeemable at £100,000, is purchased for £97,500. What is the annual simple rate of return?
- A. 5.11%
 - B. 5.00%
 - C. 5.25%
 - D. 5.50%
74. An investor deposits £6,000 for 5 years. If invested for 2 years at 6% simple interest and then reinvested for 3 years at 6% simple interest, what is the accumulated value?
- A. £7,632
 - B. £7,600
 - C. £7,650
 - D. £7,700

75. What is the present value of £10,000 due in 8 months at a commercial discount rate of 10% per annum?
- A. £9,333.33
 - B. £9,400.00
 - C. £9,500.00
 - D. £9,200.00
76. An investment of £5,000 grows to £7,320.50 in 4 years under compound interest. What is the annual interest rate?
- A. 10%
 - B. 11%
 - C. 9%
 - D. 12%
77. What is $A(2, 6)$ if £4,000 invested at time 0 grows to £6,400 at time 6, and $A(0, 2) = 1.2$?
- A. 1.3333
 - B. 1.3000
 - C. 1.3500
 - D. 1.4000
78. What is the effective annual interest rate equivalent to a simple interest rate of 4% per annum over 5 years?
- A. 3.71%
 - B. 3.80%
 - C. 3.90%
 - D. 3.60%
79. What is the present value of £30,000 due in 6 years at a compound discount rate of 5% per annum?
- A. £22,313.35
 - B. £22,400.00
 - C. £22,500.00
 - D. £22,200.00

80. An investor's balance grows from £3,000 to £3,240 from 1 Jan to 1 Jul, and to £3,499.20 by 1 Jan next year. What is the effective six-monthly interest rate for the first half of the year?
- A. 8%
 - B. 7%
 - C. 9%
 - D. 6%
81. What is the effective rate of interest for the fourth year under 5% simple interest per annum?
- A. 4.76%
 - B. 4.80%
 - C. 4.70%
 - D. 4.85%
82. What is the accumulated value of £4,000 after 5 years at a compound discount rate of 4% per annum?
- A. £4,866.18
 - B. £4,900.00
 - C. £4,800.00
 - D. £4,850.00
83. What is the effective annual interest rate if £2,000 grows to £3,243.01 in 5 years under compound interest?
- A. 10%
 - B. 9%
 - C. 11%
 - D. 8%
84. What is $A(3, 7)$ if £5,000 invested at time 0 grows to £7,500 at time 7, and $A(0, 3) = 1.3$?
- A. 1.1538
 - B. 1.2000
 - C. 1.1000
 - D. 1.2500

85. What is the present value of £20,000 due in 10 months at a commercial discount rate of 8% per annum?
- A. £18,666.67
 - B. £18,700.00
 - C. £18,800.00
 - D. £18,600.00
86. What is the effective two-yearly interest rate equivalent to an effective annual interest rate of 10%?
- A. 21%
 - B. 20%
 - C. 22%
 - D. 19%
87. What is the accumulated value of £5,000 after 6 years at a simple discount rate of 3% per annum?
- A. £6,097.56
 - B. £6,100.00
 - C. £6,000.00
 - D. £6,200.00
88. What is the effective annual interest rate if £3,000 grows to £4,392.30 in 4 years under compound interest?
- A. 10%
 - B. 11%
 - C. 9%
 - D. 12%
89. A 91-day treasury bill, redeemable at £100,000, is purchased for £98,000. What is the annual simple rate of return?
- A. 8.06%
 - B. 8.00%
 - C. 8.10%
 - D. 7.90%

Solutions

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|-------------------|-------------------|-------------------|
| 1. A) £1,100 | 31. A) £4,053.19 | 61. A) 1.20 |
| 2. A) £1,920 | 32. A) £16,666.67 | 62. A) 4.77% |
| 3. A) £3,180 | 33. A) 1.30 | 63. A) £14,996.90 |
| 4. A) £4,761.90 | 34. A) £5,033.99 | 64. A) 8% |
| 5. A) £2,800 | 35. A) 11% | 65. A) 5.66% |
| 6. A) £3,770.07 | 36. A) £7,840 | 66. A) £2,332.39 |
| 7. A) £1,710 | 37. A) £8,163.27 | 67. A) 10% |
| 8. A) £2,820 | 38. A) £1,125.94 | 68. A) 1.1538 |
| 9. A) £2,163.20 | 39. A) £8,333.33 | 69. A) £23,875 |
| 10. A) £5,555.56 | 40. A) 10% | 70. A) 16.64% |
| 11. A) £1,150 | 41. A) £5,714.50 | 71. A) £3,529.41 |
| 12. A) £6,300 | 42. A) £12,300 | 72. A) 8% |
| 13. A) £4,410 | 43. A) 1.40 | 73. A) 5.11% |
| 14. A) £7,692.31 | 44. A) £6,028.28 | 74. A) £7,632 |
| 15. A) £2,360 | 45. A) 13% | 75. A) £9,333.33 |
| 16. A) £4,713.07 | 46. A) £6,945.56 | 76. A) 10% |
| 17. A) £1,440 | 47. A) £4,435.91 | 77. A) 1.3333 |
| 18. A) £9,300 | 48. A) £3,000 | 78. A) 3.71% |
| 19. A) £3,780 | 49. A) £9,600 | 79. A) £22,313.35 |
| 20. A) £3,773.58 | 50. A) 9% | 80. A) 8% |
| 21. A) £5,788.13 | 51. A) £4,665.60 | 81. A) 4.76% |
| 22. A) £8,879.96 | 52. A) £9,600 | 82. A) £4,866.18 |
| 23. B) 10% | 53. A) 1.35 | 83. A) 10% |
| 24. A) £3,720 | 54. A) £6,898.45 | 84. A) 1.1538 |
| 25. A) £9,600 | 55. A) 10% | 85. A) £18,666.67 |
| 26. A) 1.30 | 56. A) £3,367.98 | 86. A) 21% |
| 27. A) £14,236.30 | 57. A) £8,876.16 | 87. A) £6,097.56 |
| 28. A) 10% | 58. A) £7,351 | 88. A) 10% |
| 29. A) £2,400 | 59. A) £14,250 | 89. A) 8.06% |
| 30. A) £7,600 | 60. A) 13% | |