Mathematics Of Finance (Canadian) 9th edition Brown Test Bank

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Mathematics Of Finance 9ce Edition by Brown Ch02

Correct answers are located in the second half of this document.

MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.

1) You invest $800 on May 25, 2021. On what day will you have earned exactly $31.96 of interest if your investment earns simple interest at $r = 6\%$?

A) August 31, 2021
B) January 20, 2022
C) January 23, 2022
D) January 25, 2022

Question Details
Accessibility : Keyboard Navigation
Topic : 01-02 Value of t
Difficulty : Easy

2) You invest $50,000 today. It earns simple interest at 15% for the first 5 months, 10% for the next 3 months and 12% for the last 2 months. What is the accumulated value at the end of 10 months?

A) $56,450
B) $56,250
C) $55,542
D) $55,375

Question Details
Accessibility : Keyboard Navigation
Topic : 01-01 Accumulated Value at Simple Interest
Difficulty : Medium

3) You buy a stove for $1500 on February 20. The store gives you 4 months "interest free", after which you must pay the $1500. However, the store charges an administration fee of $50, to be paid today. What rate of simple interest, r, are you being charged for this "interest free" plan?

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A) 10.49%
B) 10.34%
C) 10.14%
D) 10.00%

Question Details
Accessibility : Keyboard Navigation
Topic : 01-10 Partial Payments
Difficulty : Hard

4) You buy some furniture for $600. The department store offers you "no interest for 8 months" after which you can pay the $600 in one lump sum. To take advantage of this deal, the store charges a $25 service fee, which is to be paidtoday. What rate of simple interest is the store charging you for this "no interest" loan?

A) 6.25%
B) 5.80%
C) 6.05%
D) 6.52%

Question Details
Accessibility : Keyboard Navigation
Topic : 01-10 Partial Payments
Difficulty : Hard

5) You invest $2300 on June 10. On November 10, you have earned $72.42 of interest. What rate of simple interest did you earn?

A) 7.41%
B) 7.51%
C) 7.56%
D) 7.66%

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-10 Partial Payments

6) You invest \$20,000 in a fund that earns simple interest at $r = 7\%$ for 2 years, followed by simple interest at $r = 5\%$ for 3 years. How much will you have at the end of 5 years?

A) \$25,800.00
B) \$26,220.00
C) \$26,507.30
D) \$26,050.50

Question Details
Accessibility : Keyboard Navigation
Topic : 01-01 Accumulated Value at Simple Interest
Difficulty : Medium

7) You take out a loan of \$ A at a simple interest rate of r for n-days ($n > 0$). Under exact interest, you have to pay back \$8230 at the end of n-days. If ordinary interest is used instead, what would be the amount to be paid back at the end of n-days?

A) \$8,230
B) More than \$8230
C) Less than \$8230
D) Need more information to determine

Question Details
Accessibility : Keyboard Navigation
Topic : 01-01 Accumulated Value at Simple Interest
Difficulty : Medium

8) Suppose you deposit \$10,000 on March 21 in a fund earning simple interest at $r = 4\%$. How much will you have exactly 6 months later?

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A) $10,204.44
B) $10,202.74
C) $10,201.64
D) $10,200.00

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-01 Accumulated Value at Simple Interest

9) A merchant receives an invoice for $8000 with terms 2/10, *n*/50. What is the maximum interest rate that the merchant could borrow money at to take advantage of the discount?

A) 18.62%
B) 18.25%
C) 14.90%
D) 14.60%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-04 Invoice Cash Discounts

10) A loan of $10,000 is taken out on November 7, 2020 at a simple interest rate of $r = 9\%$. The loan will be paid back on May 11, 2021. If the bank uses ordinary interest (the Banker's Rule), how much interest is charged?

A) $443.84
B) $450.00
C) $456.16
D) $462.50

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-01 Accumulated Value at Simple Interest

11) You deposit $10,000 in a 9-month investment that pays $r = 8\%$ for the first 6 months and $r = 6\%$ for the last 3 months. What is the maturity value of the investment at the end of 9 months?

A) $10,544.80
B) $10,550.00
C) $10,556.00
D) $10,563.61

Question Details
Accessibility : Keyboard Navigation
Topic : 01-01 Accumulated Value at Simple Interest
Difficulty : Medium

12) How long does it take for $1000 to earn $1200 of interest at a simple interest rate of $r = 3.5\%$?

A) 5 years, 261 days
B) 5 years, 258days
C) 34 years, 105 days
D) 34 years, 103 days

Question Details
Accessibility : Keyboard Navigation
Topic : 01-02 Value of t
Difficulty : Medium

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13) A wholesale electrical supply store is offering to its customers terms of 3/30, *n*/90. What is the highest simple interest rate that A-1 Electric can afford to borrow money in order to take advantage of the discount?

A) 12.17%
B) 12.54%
C) 18.25%
D) 18.81%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-04 Invoice Cash Discounts

14) Interest of $300 is charged on a loan of $7300 bearing interest at $r = 11\%$. What was the term of the loan? (Answer to the nearest day)

A) 131 days
B) 134 days
C) 136 days
D) 142 days

Question Details
Accessibility : Keyboard Navigation
Topic : 01-02 Value of t
Difficulty : Easy

15) A merchant receives an invoice for $25,000 with terms 4/15, *n*/60. What is the highest simple interest rate at which he can afford to borrow in order to take advantage of the discount?

A) 24.3%
B) 25.3%
C) 32.4%
D) 33.8%

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-04 Invoice Cash Discounts

16) An invoice for $12,000 has terms 1/20, *n*/45. If you borrow money to take advantage of the discount and the bank usesordinaryinterest (i.e. the banker's rule), what is the maximum rate of simple interest that you would be willing to pay?

A) 8.08%
B) 8.19%
C) 14.55%
D) 14.75%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-04 Invoice Cash Discounts

17) A merchant receives an invoice for $5000 with terms 4/30, *n*/100. In order to take advantage of discount, she wants to borrow the required money. If she can borrow at $r = 14\%$, how much money does she save?

A) $74.08
B) $71.12
C) $65.75
D) $63.12

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-04 Invoice Cash Discounts

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18) You deposit $100,000 on March 31, 2021 in a fund earning simple interest at $r = 6\%$. Using the banker's rule (ordinary interest), how much do you have on July 31, 2021?

A) $102,000.00
B) $102,005.48
C) $102,033.33
D) $102,050.00

Question Details
Accessibility : Keyboard Navigation
Topic : 01-01 Accumulated Value at Simple Interest
Difficulty : Medium

19) A merchant receives an invoice for $4000 with terms 4/30, *n*/100. What is the highest rate of simple interest at which he can afford to borrow in order to take advantage of the discount?

A) 14.60%
B) 15.21%
C) 20.86%
D) 21.73%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-04 Invoice Cash Discounts

20) You invest $8000 in a fund earning simple interest at $r = 4\%$ for the first 150 days followed by $r = 6\%$ for the last 120 days. How much do you have in your fund at the end of 270 days?

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A) $8291.91
B) $8289.32
C) $8287.24
D) $8284.72

Question Details
Accessibility : Keyboard Navigation
Topic : 01-01 Accumulated Value at Simple Interest
Difficulty : Medium

21) You invest $20,000. It earns simple interest at 7% for the first 5 months and 8% for the next 3 months. What is the accumulated value at the end of 8 months?

A) $20,998.06
B) $20,995.00
C) $20,986.30
D) $20,983.33

Question Details
Accessibility : Keyboard Navigation
Topic : 01-01 Accumulated Value at Simple Interest
Difficulty : Medium

22) You buy a stove for $1500 on March 20. The store gives you 4 months "interest free", so on July 20 you must pay the $1500. However, the store charges an administration fee of $50, to be paid today. What rate of simple interest, *r*, are you being charged for this "interest free" plan?

A) 9.97%
B) 10.00%
C) 10.32%
D) 10.35%

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Question Details
Accessibility : Keyboard Navigation
Topic : 01-10 Partial Payments
Difficulty : Hard

23) You buy goods for $10,000 and receive an invoice with terms 1/10, *n*/40. What is the maximum simple interest rate that you would borrow money at to take advantage of the discount?

A) 9.13%
B) 9.22%
C) 12.17%
D) 12.29%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-04 Invoice Cash Discounts

24) A $12,000 short term loan was taken out on April 3, 2021 at a simple interest rate of 8%. The amount repaid was $12,481.32. On what date in 2021 was the loan repaid?

A) October 1
B) October 3
C) October 6
D) October 9

Question Details
Accessibility : Keyboard Navigation
Topic : 01-02 Value of t
Difficulty : Easy

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25) A merchant receives an invoice for $5000 with terms 1/30, *n*/100. In order to take advantage of discount, she wants to borrow the required money. If she can borrow at $r = 6\%$, how much money does she lose (negative) or save (positive)?

A) −$6.96
B) −$7.53
C) $7.53
D) $6.96

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-04 Invoice Cash Discounts

26) On March 24, 2021, Chen and Mary borrow $18,000 each at a simple interest rate $r = 12\%$. Chen's bank calculates interest using exact interest, while Mary's bank uses the Banker's Rule (ordinary interest). Let X = amount Chen pays back on September 24, 2021, and Y = amount Mary pays back on September 24, 2021. What is the value of $X-Y$?

A)−$15.12
B)−$8.88
C) $8.88
D) $15.12

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-01 Accumulated Value at Simple Interest

27) Dave takes out a loan for $5000 to be repaid at the end of 9 months. The simple interest rate on the loan is $r = 9\%$ for the first two months, $r = 12\ \%$ for the next 6 months, and $r = 6\%$ thereafter. How much does Dave have to pay back at the end of 9 months?

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A) $5337.50
B) $5450.00
C) $5225.00
D) $5400.00

Question Details
Accessibility : Keyboard Navigation
Topic : 01-01 Accumulated Value at Simple Interest
Difficulty : Medium

28) You buy some furniture for $800 and pay "no interest" for *n*-days. This means that after *n*-days, you owe the furniture company $800. However, there is an administration fee of $50 that you must pay today (when you buy the furniture). If the rate of simple interest that you are being charged is 12.4%, what is *n*? (Answer to nearest day)

A) 99 days
B) 184 days
C) 173 days
D) 196 days

Question Details
Accessibility : Keyboard Navigation
Topic : 01-02 Value of t
Difficulty : Medium

29) Mary deposits $15,000 in a bank account earning simple interest rate $r = 5.25\%$ on October 25, 2021 and leaves it on deposit until February 4, 2022. Using exact interest, how much interest is earned during the entire investment period?

A) $217.91
B) $223.13
C) $220.07
D) $222.23

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-01 Accumulated Value at Simple Interest

30) Bob purchases a new smart phone for $500. The terms for the purchase are 2/30 *n*/90. If Bob would need to borrow money to take advantage of the discount, at what is the highest rate of simple interest he would be willing to borrow money at in order to take advantage of the discount?

A) 12.41%
B) 8.28%
C) 12.24%
D) 8.11%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-04 Invoice Cash Discounts

31) You invest $15,000 on December 2, 2020 at a simple interest rate of $r = 6\%$. Interest is to be calculated using ordinary interest (banker's rule). What is the accumulated value of your investment on June 12, 2021?

A) $15,407.50
B) $15,473.42
C) $15,477.53
D) $15,480.00

Question Details
Accessibility : Keyboard Navigation
Topic : 01-01 Accumulated Value at Simple Interest
Difficulty : Medium

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32) A merchant receives an invoice for $8000 with terms 2/10, *n*/60. What is the highest rate of simple interest at which he can afford to borrow in order to take advantage of the discount?

A) 14.60%
B) 15.05%
C) 14.90%
D) 14.95%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-04 Invoice Cash Discounts

33) You deposit $200,000 on April 29 in a fund earning simple interest at $r = 7\%$. Using the banker's rule (ordinary interest), how much do you have on September 29?

A) $205,950.00
B) $205,911.11
C) $205,868.49
D) $205,833.33

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-01 Accumulated Value at Simple Interest

34) You buy an oven for $1500 on March 20. The store gives you 4 months "interest free", so on July 20 you must pay the $1500. However, the store charges an administration fee of $75, which must be paid up front when you buy the oven (March 20). What rate of simple interest, *r*, are you being charged for this "interest free" plan?

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A) 15.79%
B) 14.25%
C) 14.96%
D) 15.75%

Question Details
Accessibility : Keyboard Navigation
Topic : 01-01 Accumulated Value at Simple Interest
Difficulty : Medium

35) You borrow \$800 today at $r = 12\%$ from a bank that uses ordinary interest (Banker's rule). You pay back at least \$845 in n-days. What is the value of n?

A) 168 days
B) 169 days
C) 171 days
D) 172 days

Question Details
Accessibility : Keyboard Navigation
Topic : 01-02 Value of t
Difficulty : Medium

36) Jim lends \$8000 to Sally on September 23, 2021. Sally signs a promissory note, with the note due in 10 months. The maturity value of the note is \$8536.55. Jim sells the note to a bank on February 23, 2022. If the bank wishes to earn $r = 8\%$, what price does Jim get for the note?

A) \$8259.57
B) \$8261.18
C) \$8264.83
D) \$8268.27

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-07 Promissory Notes

37) A 6-month non-interest bearing promissory note with a face value of $2500 is taken out on Jan. 5, 2022. What are the proceeds on Feb. 12, 2022 if the note is discounted using a simple interest rate of $r = 10\%$?

A) $2380.02
B) $2403.85
C) $2405.75
D) $2497.40

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-07 Promissory Notes

38) What is the price of a Canadian $100,000 182-day T-bill if the yield rate is 5%?

A) $97,506.85
B) $97,567.50
C) $102,493.15
D) $102,556.90

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-14 Application of Simple Interest/Simple Discount—Treasury Bills (or T-Bills)

39) A loan was taken out on January 1, 2022 at a simple interest rate of 8.5%. Interest is to be calculated using ordinary interest (banker's rule). The amount repaid on December 29, 2022 is $13,027.02. What was the original amount of the loan?

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A) $11,998.64
B) $12,001.25
C) $12,006.47
D) $12,014.21

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-06 Discounted Value at Simple Interest

40) A $10,000 91-day Canadian T-Bill was purchased for $9889.05 to yield 4.5%. The T-bill is sold 32 days later to an investor who wishes to yield 4.15%. At what price is the T-bill sold?

A) $9897.59
B) $9925.03
C) $9928.06
D) $9933.36

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-14 Application of Simple Interest/Simple Discount—Treasury Bills (or T-Bills)

41) A retailer buys goods from a supplier for $8000. The goods cost the supplier $7750. The retailer signs a non-interest bearing promissory note due in 120 days. After 10 days, the supplier sells the note to a bank that discounts the note using a simple interest rate of 10%. What rate of return, *r,* did the supplier earn over the 10 days?

A) 2.5%
B) 4.6%
C) 7.5%
D) 9.6%

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-07 Promissory Notes

42) A loan was taken out on March 3 at a simple interest rate of 8%. Interest is to be calculated usingordinaryinterest (Banker's rule). The amount repaid in 6 months is $12,482.67. What was the original amount of the loan?

A) $11,992.32
B) $11,998.77
C) $12,002.57
D) $12,003.83

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-06 Discounted Value at Simple Interest

43) A loan was taken out on January 1, 2021 at a simple interest rate of 8.5%. Interest is to be calculated usingordinaryinterest (Banker's rule). The amount repaid on December 29, 2021 is $13,027.02. What was the original amount of the loan?

A) $12,014.21
B) $12,011.63
C) $12,001.25
D) $11,998.64

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-06 Discounted Value at Simple Interest

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44) An investor bought a 91-day $25,000 Canadian Treasury Bill to yield $r = 3.5\%$. The investor sold the T-bill 40 days later to another investor who wishes to yield $r = 3.25\%$. What price did the T-bill sell for?

A) $25,104.15
B) $25,089.04
C) $24,886.99
D) $24,880.37

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-14 Application of Simple Interest/Simple Discount—Treasury Bills (or T-Bills)

45) Andrew has a promissory note for $15,000 dated April 6, 2021. The note has a legal due date 123 days later, with simple interest at 12%. Andrew sells the note on June 1, 2021 to a bank charging a simple interest rate of 15%. What are the proceeds of the sale?

A) $15,202.77
B) $15,188.40
C) $15,184.55
D) $15,170.17

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-07 Promissory Notes

46) A 182-day Canadian T-Bill with a face value of $25,000 is purchased for $ X by an investor who wishes to yield $r = 3.50\%$. What is X?

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A) $24,558.29
B) $24,564.24
C) $24,565.33
D) $24,571.18

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-14 Application of Simple Interest/Simple Discount—Treasury Bills (or T-Bills)

47) A loan of P is taken out at a simple interest rate of $r = 10.4\%$. Two months later, a partial loan payment of $500 is made. Of this payment, $301.34 went towards paying interest on the loan while $198.66 went to reducing the outstanding balance of the loan. What is the value of P? (Answer to nearest dollar)

A) $2898
B) $3096
C) $11,461
D) $17,385

Question Details
Accessibility : Keyboard Navigation
Topic : 01-01 Accumulated Value at Simple Interest
Difficulty : Medium

48) ABC Company borrows $ P from XYZ bank on March 3 by writing a promissory note, due in 6 months at a simple interest rate of 5%. The bank usesordinary interest in its calculations. If the maturity value of the note is $257,000, what is P? (Answer to nearest dollar)

A) $250,494
B) $250,581
C) $250,596
D) $250,682

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-07 Promissory Notes

49) Mr. A lends $20,000 to Mr. B on May 6, 2021. A promissory note is written by Mr. B at a simple interest rate of 9%. The due date of the note is October 6, 2021. The maturity value of the note is $20,769.32. Mr. C sells the note to a bank on August 6, 2021 for $20,419.16. What rate of return does the bank earn on their investment?

A) 9.78%
B) 10.26%
C) 11.71%
D) 11.95%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-07 Promissory Notes

50) On July 8, 2021, Josephine lends Joni $10,000. Joni gives Josephine a 90-day non-interest bearing promissory note with face amount $10,000. On August 12, 2021, Josephine sells the note to a finance company that uses a simple interest rate $r = 5\%$. What are the proceeds received by Josephine?

A) $9,925.22
B) $9,921.17
C) $10,043.49
D) $10,047.95

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-07 Promissory Notes

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51) Which of the following statements is (are) true?

(i) A merchant receives an invoice for $10,000 with terms 1.5/30, *n*/90. He/she should not take advantage of the discount if he/she can borrow money at $r = 10\%$
(ii) A 60-day promissory note has a maturity value of $5000. Its price 30- days before maturity, at a rate of simple discount $d = 4\%$, is $4983.56

A) Both are true
B) (i) only
C) (ii) only
D) Neither are true

Question Details
Accessibility : Keyboard Navigation
Difficulty : Hard
Topic : 01-04 Invoice Cash Discounts
Topic : 01-13 Application of Simple Discount—Promissory Notes

52) Jane borrows $10,000 and writes a promissory note on July 10, 2021. The due date is December 12, 2021. The value on the maturity date is $10,472.00. Prior to the maturity date, it is sold to a bank that discounts the note at $r = 5\%$. If the bank pays $10,383.81 for the note, on what day was it sold?

A) October 11
B) October 14
C) October 17
D) October 20

Question Details
Accessibility : Keyboard Navigation
Difficulty : Hard
Topic : 01-07 Promissory Notes

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53) A 120-day promissory note for $50,000 bears interest at $r = 10\%$. It is sold 90-days before the maturity date to a bank that discounts the note at $r = 15\%$. What does the bank pay for the note?

A) $49,742.71
B) $49,801.85
C) $49,782.29
D) $49,841.48

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-07 Promissory Notes

54) A 182-day Canadian T-Bill with a face value of $50,000 is purchased for $ X by an investor who wishes to yield $r = 2.85\%$. What is X?

A) $49,289.45
B) $49,299.41
C) $50,720.42
D) $50,710.55

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-14 Application of Simple Interest/Simple Discount—Treasury Bills (or T-Bills)

55) A person borrows $100,000 at a simple interest rate $r = 24\%$. They are to repay the loan with 2 payments, one at the end of 2 months and the other at the end of 6 months. The first payment is the same as the 2nd payment. Determine the size of the payments, using the end of 6 months as the focal date.

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A) $46,296.30
B) $48,076.92
C) $53,846.15
D) $53,925.93

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-08 Equations of Value

56) A debt of $3000 is due in 4 months and another $5000 is due in 9 months. Instead, it is agreed that a payment of $ *X*, made in 3 months, followed by a payment of $4000 in 10 months, will fully pay off the loan. Using 9 months as the focal date, what is *X* if the simple interest rate on the loan is *r* = 10%?

A) $4365.96
B) $3960.06
C) $3896.83
D) $3841.01

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-08 Equations of Value

57) A person owes $4000 10 months from now. It is agreed that the person can, instead, pay $ *X* now and another $2000 two years from now to replace the given debts. If simple interest is *r* = 9%, what is *X* using 8 months as the focal date?

A) $1929.20
B) $2026.02
C) $2033.18
D) $2155.17

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-08 Equations of Value

58) A loan is to be paid by installments of $800 1-month from now, $600 3-months from now, and $500 4-months from now. Instead of this payment scheme, the borrower wishes to make one single payment 2 months from now. What is the amount of the single payment using a focal date of 3 months and $r = 6\%$?

A) $1905.51
B) $1901.00
C) $1896.03
D) $1890.55

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-08 Equations of Value

59) A person borrows $4000 at a simple interest rate of 7%. They agree to repay the loan with payments of X at the end of 2 months, 2 X at the end of 4 months, and 2 X at the end of 6 months. Using 6 months as the focal date, what is X?

A) $798.20
B) $809.12
C) $820.34
D) $828.00

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-08 Equations of Value

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60) Bill has a debt of $5000 which was due 30 days ago. He also has another debt of $6000 due 90 days from now. It has been decided that these 2 debts will be settled by a payment of $4000 today and a final payment of *X* made 70 days from now. If the simple interest rate is *r* = 9%, what is the value of *X* if you use a focal date of now?

A) $7025.94
B) $7024.80
C) $7000.00
D) $6906.73

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-08 Equations of Value

61) A payment of $5000 that was due 20 days ago and another payment of $4000 that is due 50 days from now are to be replaced by a payment of $6000 today and a payment of $ *X* 90-days from today. If *r* = 11%, what is the value of *X* using today as the focal date?

A) $3051.33
B) $3008.81
C) $3001.67
D) $2892.31

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-08 Equations of Value

62) You have two options available in repaying a loan. You can pay $200 at the end of 5 months and $300 at the end of 10 months<u>or</u> you can pay $ *X* at the end of 3 months and $2 *X* at the end of 6 months. What is *X* if the simple interest rate is 6% and the focal date is at the end of 5 months.

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A) $169.16
B) $168.05
C) $164.22
D) $163.14

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-08 Equations of Value

63) You have two options available in repaying a loan. You can pay $2000 at the end of 5-months and $3000 at the end of 10-monthsOR you can pay $ *X* at the end of 2-months and $3 *X* at the end of 9-months. If the simple interest rate is $r = 4\%$ and the focal date is at the end of 5-months, what is *X*?

A) $1246.89
B) $2479.32
C) $2685.41
D) $2727.19

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-08 Equations of Value

64) A debt of $5000 is due today and another debt of $4000 is due in 70 days. These debts are to be replaced by a payment of $6000 in 20-days and a payment of $ *X* in 110-days (from today). If $r = 11\%$, what is the value of *X* using the end of 20 days as the focal date?

A) $2892.31
B) $3008.81
C) $3001.67
D) $3051.34

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-08 Equations of Value

65) A company owes $100,000 at the end of 1-month and another $200,000 at the end of 11-months. Instead, they wish to consolidate their loans and make one single payment of $ *X* at the end of 6 months. It is agreed that theendof5-months will be the focal date. If the interest is *r* = 12%, what is the value of *X*?

A) $295,476.19
B) $295,606.04
C) $300,000.00
D) $295,941.49

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-08 Equations of Value

66) A loan of $5000 is taken out on May 25. The interest rate on the loan is *r* = 12%. A payment of $105 is made 102 days later and a payment of *X*, is due 175 days after May 25. What is *X* if the declining balance method is used?

A) $5180.15
B) $5182.67
C) $5184.18
D) $5287.67

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-10 Partial Payments

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67) A loan of $ P is taken out. It is to be repaid with a payment of $2000 in 2 months, $50 in 6 months and a final payment due in 10 months. If the Merchant's rule is used, the final payment turns out to be $3000. If the rate of simple interest on the loan is r = 12%, what is P?

A) $4733.51
B) $4735.23
C) $4736.36
D) $4738.18

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-10 Partial Payments

68) A loan of $4000 is due in 9 months with simple interest at 8%. The borrower makes partial payments of $150 in 3 months and $2500 in 6 months. Using the Merchant's rule, what is the balance due in 9 months?

A) $1508.60
B) $1534.00
C) $1538.77
D) $1540.20

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-10 Partial Payments

69) A loan of $20,000 is to be paid off with 2 equal installments of X, occurring 3 months from now and 8 months from now. What is the value of X if r = 9 % and Merchant's rule is used?

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A) $10,291.26
B) $10,404.91
C) $10,409.12
D) $10,413.19

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-10 Partial Payments

70) A debt of $5000 is to be paid off by installments of $2000 in 30 days, $2500 in 60 days, and a final payment of $584.15. If simple interest is charged at $r = 12\%$ and the declining balance method is used, in how many days after the $2500 payment should the final payment be made?

A) 25
B) 32
C) 85
D) 92

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-10 Partial Payments

71) You take out a loan of $10,000 today at simple interest at $r = 15\%$. You make the following payments: $100 in two months, $8000 in four months and the balance in 6 months. What is the final balance according to the declining balance method?

A) $2445.00
B) $2460.00
C) $2463.84
D) $2562.50

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-10 Partial Payments

72) A loan of $15,000 was repaid as follows: $8000 in 4 months, $150 in 6 months and a payment of $X in 9 months which will fully pay off the loan. If the rate of simple interest on the loan is 10%, what is the value of X according to the Merchant's rule?

A) $7637.92
B) $7641.67
C) $7661.88
D) $7700.83

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-10 Partial Payments

73) Using the Merchant's rule, a debt of $4000 is paid off as follows: $1000 in 30 days from today, $2000 in 60 days from today, and a final payment of $1026.51 in 80 days from today. What simple interest rate, *r*, was used?

A) $r < 4\%$
B) $4\% < r < 4.5\%$
C) $4.5\% < r < 5.0\%$
D) $5.0\% < r$

Question Details
Accessibility : Keyboard Navigation
Topic : 01-10 Partial Payments
Difficulty : Hard

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74) A debt of $60,000 is to be paid off by installments of $20,000 in 20 days from today, $1500 in 60 days from today and a final payment of $ *X* in 85 days from today. If simple interest is charged at *r* = 16% and the declining balance method is used, what is *X*?

A) $40,149.32
B) $40,172.09
C) $40,180.74
D) $41,585.76

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-10 Partial Payments

75) A debt of $5000 is to be paid off by installments of $2000 30-days from now, $2500 60-days from now, and a final payment of $613.68 *t*-days from now. If simple interest is charged at *r* = 12% and the declining balance method is used, what is the value of *t*?

A) 245
B) 240
C) 180
D) 111

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-10 Partial Payments

76) A loan of $10,000 was taken out at a simple interest rate of 12%. The first two partial payments are: $200 (91 days after the loan date) and $ *Y* (39 days later). Using the declining balance method, the loan balance immediately after the payment of *Y* is $8228.67. What is the value of *Y*?

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A) $2198.73
B) $2002.56
C) $2000.00
D) $1998.73

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-10 Partial Payments

77) A $2000 loan is paid off with a payment of $800 in 50 days and a final payment of $1240 in 90 days (after date of loan). Assuming the Merchant's rule, what simple interest rate, *r*, was used?

A) $r \geq 10.20\%$
B) $9.40\% < r \leq 10.20\%$
C) $8.60\% < r \leq 9.40\%$
D) $r < 8.60\%$

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-10 Partial Payments

78) Using the Merchant's rule, a debt of $4000 is paid off as follows: $2000 in 50 days and a final payment of $2026.51 in 80 days from today. What simple interest rate, *r*, was used?

A) $r < 3.0\%$
B) $3.0\% < r < 3.5\%$
C) $3.5\% < r < 4.0\%$
D) $r > 4.0\%$

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-10 Partial Payments

79) A loan of $12,000 is taken out today at a simple interest rate of $r = 15\%$. It is repaid with a payment of $200 in 3-months, $6000 in 6-months (from today) and the balance, X, due in 11 months (from today). What is the value of X using the declining balance method?

A) $7055.00
B) $7131.25
C) $7118.75
D) $7128.71

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-10 Partial Payments

80) Which of the following statements is (are) true with respect to simple interest loans repaid by a series of partial payments?

(I) Using the Declining Balance Method, a partial payment is not deducted from the outstanding balance at the time the partial payment is made if the partial payment is<u>greater</u> than the interest due at the time.
(II) The total interest paid over the term of the loan will be the same under the Merchant's rule and the declining balance method.

A) Both are true
B) (I) only
C) (II) only
D) Neither are true

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Question Details
Accessibility : Keyboard Navigation
Topic : 01-10 Partial Payments
Difficulty : Hard
Topic : 01-09 Equation of Value

81) A loan of $10,000 is taken out on October 29 and is to be paid off with 2 equal installments of X, to be paid on November 18 and December 29. What is the value of X if $r = 7\%$ and the Merchant's rule is used?

A) $5038.68
B) $5057.21
C) $5102.45
D) $5171.99

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-10 Partial Payments

82) A loan of $4000 is paid off over 9-months at a simple interest rate of $r = 8\%$. The borrower makes partial payments of $150 in 3-months and $2500 in 6-months. Using the declining balance method, what is the final balance due at the end of 9-months?

A) $1508.60
B) $1534.00
C) $1538.77
D) $1540.20

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-10 Partial Payments

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83) A debt of $60,000 is to be paid off with partial payments of $20,000 in 20-days (from today), $1500 in 60-days (from today) and a final payment of $ *X* in 85-days (from today). If simple interest is charged at 16% and the declining balance method is used, what is *X*?

A) $40,149.32
B) $40,172.09
C) $40,180.74
D) $41,585.76

Question Details
Accessibility : Keyboard Navigation
Topic : 01-10 Partial Payments
Difficulty : Hard

84) A deposit of $25,000 is made on February 28th, 2022. Given a simple discount rate of d = 8%, what is the accumulated value of the $25,000 on May 18th, 2022, assuming thebankersrule for t?

A) $25,446.73
B) $25,440.50
C) $25,438.89
D) $25,432.88

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-11 Simple Discount at a Discount Rate

85) You owe the bank $2000 in 9 months. Instead you negotiate with the bank to pay $1200 in 3 months and $ *X* in 7 months to fully pay off the loan. Using a simple discount rate of d = 9% and a focal date of 7 months from now, what is *X*?

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A) $732.89
B) $734.44
C) $866.46
D) $877.08

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-11 Simple Discount at a Discount Rate

86) A bank gives a customer $30,000 on June 5. What is the amount to be repaid after 3 months if the bank charges $d = 7\%$?

A) $30,525.00
B) $30,529.32
C) $30,534.35
D) $30,538.82

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-11 Simple Discount at a Discount Rate

87) How long will it take $2000 to accumulate to $2119.63 at a simplediscount rate of 10%?

A) 206 days
B) 215 days
C) 218 days
D) 223 days

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-11 Simple Discount at a Discount Rate

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88) A bank offers a 9 month discounted loan at a simple discount rate of $d = 9.5\%$. In order to receive $5000 today, what size loan should you ask for?

A) $5383.58
B) $5356.25
C) $5000.00
D) $4643.75

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-11 Simple Discount at a Discount Rate

89) A man takes out a discounted loan at a simple discount rate of $d = 10.5\%$. If the amount he pays back in 9 months is $5712, how much money does he actually receive today?

A) $5112.24
B) $5262.18
C) $5295.02
D) $5332.00

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-11 Simple Discount at a Discount Rate

90) What rate of simple interest, r, is equivalent to a rate of simple discount, $d = 9\%$, over a period of 10 months?

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A) 8.25%
B) 8.37%
C) 9.73%
D) 9.89%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-12 Calculating the True Rate of Simple Interest for a Discounted Loan

91) A man takes out a discounted loan, with face amount $8235, at a simple discount rate of $d = 7.5\%$. If the amount he pays back in 11 months is $8235, how much interest does the man pay on the loan and when does he pay the interest?

A) $529.74, paid today at issue of the loan
B) $529.74, paid at the end of 11 months
C) $566.16, paid today at issue of the loan
D) $566.16, paid at the end of 11 months

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-11 Simple Discount at a Discount Rate

92) A merchant issues a promissory note. The note has a term of 90 days and a maturity value of $6122.30. The note is sold after 30 days to a bank that discounts the note at $d = 10\%$ simple discount. How much does the bank pay for the note?

A) $6016.63
B) $6018.42
C) $6021.66
D) $6023.29

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-13 Application of Simple Discount—Promissory Notes

93) How long will it take $4000 to accumulate to $4262.77 at a simplediscount rate of 9%?

A) 247 days
B) 250 days
C) 263 days
D) 267 days

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-11 Simple Discount at a Discount Rate

94) What simplediscount rate d is equivalent over a 200-day period to simple interest rate of 8% for the first 100 days and 10% thereafter, if interest from the first 100 days does not earn interest during the last 100 days?

A) 9.11%
B) 9.00%
C) 8.68%
D) 8.58%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Hard
Topic : 01-12 Calculating the True Rate of Simple Interest for a Discounted Loan

95) A 90-day promissory note with face value $5000, has a maturity value of $5127.40. After 30-days, it is sold to a bank that charges a simple discount rate of d = 10%. What rate of simple interest did the original owner of the note earn?

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A) 9.47%
B) 9.83%
C) 10.49%
D) 10.82%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-13 Application of Simple Discount—Promissory Notes

96) You go to a bank that offers a 270-day discounted loan at $d = 9\%$. You wish to walk out the door with $5000. What size loan should you ask for?

A) $5360.87
B) $5356.62
C) $5332.88
D) $4667.12

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-11 Simple Discount at a Discount Rate

97) What simple discount rate d is equivalent to a simple interest rate of 8% over a 200-day period?

A) 9.00%
B) 7.66%
C) 8.58%
D) 7.41%

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-12 Calculating the True Rate of Simple Interest for a Discounted Loan

98) Mr. A lends $20,000 to Mr. B on May 6, 2021. A promissory note is written by Mr. B at a simple interest rate of 9%, with a due date of October 6, 2021. The maturity value of the note is $20,769.32. The note was sold by Mr. A on June 26, 2021 to Mr. C who discounts the note atasimplediscountrateof 8%. What price does Mr. A receive for the note?

A) $20,291.34
B) $20,302.09
C) $20,305.00
D) $20,315.15

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-13 Application of Simple Discount—Promissory Notes

99) A 180-day discounted loan is taken out today from a bank that charges a simple discount rate of $d = 9\%$. The bank also uses ordinary interest. If the amount to be paid back in 180 days is $3000, how much money is actually received today?

A) $2865.00
B) $2866.85
C) $2870.81
D) $2872.5

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-11 Simple Discount at a Discount Rate

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100) A bank lends money using a simple discount rate $d = 8\%$. If John needs $10,000 today and will repay the loan in 8 months, what loan amount should he request?

A) $10,800.00
B) $10,533.33
C) $10,563.38
D) $9,466.67

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-11 Simple Discount at a Discount Rate

101) Joanne loans Mark $2500. Mark agrees to repay the loan with simple interest rate $r = 7\%$ in 1 year. Joanne then turns around and immediately sells her loan repayment rights to a bank which uses a simple discount rate of $d = 7\%$. Which of the following statements is (are) true?

(I) Joanne has an immediate net loss of $12.25.
(II) The bank will earn $175 on their investment.

A) Both are true
B) (I) only
C) (II) only
D) None are true

Question Details
Accessibility : Keyboard Navigation
Difficulty : Hard
Topic : 01-11 Simple Discount at a Discount Rate

102) You are given that $2000 accumulates to $2032.88 at the end of 120 days at a simple interest rate equal to r. What is the equivalent simple discount rate, d, over the same 120-days period?

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A) 5.00%
B) 4.92%
C) 4.53%
D) 1.62%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-12 Calculating the True Rate of Simple Interest for a Discounted Loan

103) Which of the following statements is TRUE?

A) An investment earning simple interest at rate r always earns less interest compared to the same investment using a compound interest rate of $j_1 = r$.

B) When discounting a promissory note, the larger the simple interest rate used to discount the note, the larger will be the proceeds of the note.

C) On a loan, interest calculated using ordinary interest is always less than that calculate using exact interest.

D) If a simple discount rate of d isequivalent to a simple interest rate of r, then $d < r$ as long as time t is positive.

Question Details
Accessibility : Keyboard Navigation
Difficulty : Hard
Topic : 01-12 Calculating the True Rate of Simple Interest for a Discounted Loan

104) What is the price of a $100,000 182-day USA T-bill if the yield rate is 6%?

A) $96,966.67
B) $97,008.22
C) $97,055.97
D) $97,095.13

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-14 Application of Simple Interest/Simple Discount—Treasury Bills (or T-Bills)

105) A $100,000 91-day USA T-Bill was purchased for $98,890.50 to yield 4.5%. The T-bill is sold 32 days later to an investor who wishes to yield 4.15%. At what price is the T-bill sold?

A) $99,280.64
B) $99,287.65
C) $99,319.86
D) $99,333.65

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-14 Application of Simple Interest/Simple Discount—Treasury Bills (or T-Bills)

106) An investor bought a 91-day $25,000 USA Treasury Bill to yield $r = 3.0\%$. The investor sold the T-bill 40 days later to another investor who wishes to yield $r = 2.5\%$. What price did the T-bill sell for?

A) $24,912.98
B) $24,911.46
C) $24,895.64
D) $24,893.75

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-14 Application of Simple Interest/Simple Discount—Treasury Bills (or T-Bills)

107) A 182-day USA T-Bill with a face value of $50,000 is purchased for $ X by an investor who wishes to yield $r = 3.50\%$. What is X?

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A) $49,142.36
B) $49,130.66
C) $49,142.36
D) $49,115.28

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-14 Application of Simple Interest/Simple Discount—Treasury Bills (or T-Bills)

108) A 182-day USA T-Bill with a face value of $60,000 is purchased for $ X by an investor who wishes to yield $r = 4.85\%$. What is X?

A) $58,528.83
B) $58,548.99
C) $58,564.04
D) $58,583.25

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-14 Application of Simple Interest/Simple Discount—Treasury Bills (or T-Bills)

109) A loan of $4000 is paid off over 9-months at a simple interest rate of $r = 8\%$. The borrower makes partial payments of $150 in 3-months and $2500 in 6-months. Using the declining balance method, what is the final balance due at the end of 9-months?

A) $1508.60
B) $1534.00
C) $1538.77
D) $1540.20

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-10 Partial Payments

SECTION BREAK. Answer all the part questions.

110) Jim borrows $10,000 and writes a promissory note on November 10, 2021. The due date of the note is February 18, 2022. The legal due date value (or maturity value) is $10,472.00.

Question Details

110.1) What simple interest rate, *r*, is Jim being charged on the promissory note?

A) 17.23%
B) 16.73%
C) 16.50%
D) 15.97%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-07 Promissory Notes

110.2) The note is sold to Kim on December 21, 2022. Kim discounts the note at a simple interest rate of $r = 15\%$. How much does Kim pay for the note?

A) $10,298.48
B) $10,211.81
C) $10,224.10
D) $10,168.49

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Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-07 Promissory Notes

111) A promissory note for $6000 is written on April 23, 2021. The due date is October 4, 2021. The simple interest rate on the note is $r = 10.5\%$.

Question Details

111.1) What is the maturity value of the note if ordinary interest (banker's rule) is used?

A) $6283.07
B) $6287.00
C) $6288.25
D) $6292.25

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-07 Promissory Notes

111.2) The note is sold after 80 days to a bank for $6142.29. What rate of return, r, is earned by the original owner (payee) of the note?

A) 10.43%
B) 10.57%
C) 10.67%
D) 10.82%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-07 Promissory Notes

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112) You borrow $ *P* on May 15, 2021. You write a promissory note to repay the loan in 9 months at a simple interest rate of $r = 7\%$.

Question Details

112.1) If the maturity value is $15,012.47, what is the face value of the note? (to nearest dollar)

A) $14,264
B) $14,258
C) $14,250
D) $14,209

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-07 Promissory Notes

112.2) The note was sold 132 days prior to the maturity date to a bank. The bank pays $14,655.23 for the note. What rate of simple discount, *d,* did they use to determine this price?

A) 5.91%
B) 6.43%
C) 6.58%
D) 6.74%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-13 Application of Simple Discount—Promissory Notes

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113) John borrows $5000 from Brenda and writes a 90-day promissory note. The amount due back on the maturity date (legal due date) is $5137.50.

Question Details

113.1) What was the interest rate on the loan?

A) 10.79%
B) 11.15%
C) 10.50%
D) 10.65%

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-07 Promissory Notes

113.2) After 30-days, the note is sold by Brenda to a bank that charges a simplediscount rate of $d = 10\%$. What are the proceeds of the sale?

A) $5050.33
B) $5053.05
C) $5048.83
D) $5054.41

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-13 Application of Simple Discount—Promissory Notes

114) A person borrows $6000. A payment of $100 is made 100 days later. A second payment of $4000 is paid 200 days after the first payment. A third payment of X is due 50 days after the second payment, after which the loan balance is 0. The loan is charged a simple interest rate of $r = 10\%$.

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Question Details

114.1) What is X, if the declining balance method is used?

A) $2413.70
B) $2418.04
C) $2425.93
D) $2429.51

Question Details
Accessibility : Keyboard Navigation
Difficulty : Medium
Topic : 01-10 Partial Payments

114.2) What is X, if the Merchant's rule is used?

A) $2429.51
B) $2425.93
C) $2418.04
D) $2413.70

Question Details
Accessibility : Keyboard Navigation
Difficulty : Easy
Topic : 01-10 Partial Payments

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Answer Key

Test name: 001

1) C
$t = I/ P r$ = 31.96/(800)(0.06) = 0.66583333; Number of days = 365(0.66583333) = 243 and 243 days after May 25 is January 23.

2) D
S = 50,000 + 50,000(0.15)(5/12) + 50,000(0.10)(3/12) + 50,000(0.12)(2/12) = $55,375.

3) A
You are borrowing $1500 today and paying back the $1500 in 4 months (June 20, which is 120 days later). But admin fee I = $50 is paid today. So your "net" loan is P = 1500 - 50 = 1450.
Thus $r = I / Pt$ = 50 / 1450(120/365) = 0.104885057 = 10.49%

50[1 + r (120/365)] + 1500 = 1500[1 + r(120/365)] → r = 10.49%.

4) D
You are borrowing $600 today and paying back the $600 in 8 months. But admin fee I = $25 is paid today. So your "net" loan is P = 600 - 25 = 575.
Thus $r = I / Pt$ = 25 / 575(8/12) = 0.065217391 = 6.52%.

5) B
Nov 10 − June 10 = 153 days. $r = I/ P t$ = 72.42/(2300)(153/365) = 7.51%.

6) A
S = 20,000 + 20,000(0.07)2 + 20,000(0.05)3 = $25,800.

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7) B
Under exact interest, $t_1 = n/365$; Under ordinary interest, $t_2 = n/360$.
Since $t_2 > t_1$, accumulated values under ordinary interest will be higher.

8) C
6 months after March 21 is September 21, which is 184 days.
$S = 10{,}000[1 + (0.04)(184/365)] = \$10{,}201.64$.

9) A
$r = 160/7840(40/365) = 0.186224 = 18.62\%$.

10) B
May 11 − Nov 7 = 185 days; $I = 10{,}000(0.09)(185/360) = \$462.50$.

11) B
$S = 10{,}000 + 10{,}000(0.08)(6/12) + 10{,}000(0.06)(3/12) = \$10{,}550$.

12) C
$I = 1200$
$t = 1200 / (1000)(0.035) = 34.28571429$ years = 34 years, 105 days.

13) D
$r = 0.03/(0.97)(60/365) = 0.188144 = 18.81\%$.

14) C
$t = n/365 = I/ P\ r = 300/(7300)(0.11) = 0.373599$; $n = 136$ days.

15) D
$r = 1{,}000/24{,}000(45/365) = 0.33796 = 33.8\%$.

16) C
$r = 120/11{,}880(25/360) = 0.14545 = 14.55\%$.

17) B

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Discount = 5000(0.04) = 200; Borrow 4800 for 70 days
Repay = 4800(0.14)(70/365) = $128.88
Save = 200 - 128.88 = $71.12.

18) C
Mar 31 to July 31 = 122 days; S = 100,000[1 + (0.06)(122/360)] = $102,033.33.

19) D
Discount = 4000(0.04) = 160; Borrow 3840 for 70 days
r = 160/3840(70/365) = 21.73%.

20) B
8000 + 8000(0.04)(150/365) + 8000(0.06)(120/365) = $8289.32.

21) D
20,000 + 20,000(0.07)(5/12) + 20,000(0.08)(3/12) = $20,983.33.

22) C
Net loan, P = 1500 - 50 = 1450; admin fee I = 50 ; t = 122/365
r = 50/1450(122/365) = 10.32%.

23) D
Discount = 10,000(0.01) = 100; Borrow 9900 for 30 days
r = 100/9900(30/365) = 12.29%.

24) B
t = 481.32/12,000(0.08) = 0.501375 × 365 = 183 days later, which is October 3.

25) A
Discount = 5000(0.01) = 50; Borrow 4950 for 70 days
I = 4950(0.06)(70/365) = $56.96; Lose $6.96.

26) A

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Days = Set 24 - Mar 24 = 184 days
$X = 18{,}000[1 + (0.12)\ (184/365)] = 19088.88;$
$Y = 18{,}000[1 + (0.12)(184/360)] = 19{,}104$
$X - Y = -\$15.12.$

27) D
$S = 5000 + 5000[(0.09)(2/12) + (0.12)(6/12) + (0.06)(1/12)] = \$5400.$

28) D
Admin fee $I = 50$
Net loan, $P = S$ - fee = 800 - 50 = 750;
$t = n/365 = I/\ P\ t = 50/(750)(0.124) = 0.537634409$
Which solves for $n = 365(0.537634409) = 196$ days.

29) C
Days = Oct 25 - Feb 4 = 102; $I = Prt = 15{,}000(0.0525)(102/365) =$ $220.07.

30) A
Discount = 500(0.02) = 10; Borrow 490 for 90 - 30 = 60 days
Thus, $r = I/\ Pt = 10/(490)(60/365) = 0.12414966 = 12.41\%.$

31) D
Days = June 12 - Dec 2 = 192 days
$S = 15{,}000[1 + (0.06)(192/360)] = \$15{,}480.$

32) C
Discount = 8000(0.02) = 160; Borrow 8000 - 160 = 7840 for 50 days
$r = 160/(7840)(50/365) = 14.90\%.$

33) A
Days = Sept 29 - April 29 = 153 days
$S = 200{,}000[1 + (0.07)(153/360)] = \$205{,}950.$

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34) D
Net loan $P = S$ - fee = 1500 - 75 = 1425;
Admin fee, $I = 75$;
Days = July 20 - March 20 = 122
Thus, $r = I/Pt = 75/(1425)(122/365) = 15.75\%$.

35) B
$t = n/360 = I/Pr = 45/(800)(0.12) = 0.46875$,
which solves for $n = 360(0.46875) = 168.75 = 169$ days.

36) A
10 months after September 23 is July 23 and the maturity date is July 26
July 26 − Feb 23 = 153 days; Proceeds = $8536.55[1 + 0.08(153/365)]^{-1}$ = $8259.57.

37) B
6 months after Jan 5 is July 5 and maturity date is July 8
July 8 − Feb 12 = 146 days; Proceeds = $2500[1 + 0.10(146/365)]^{-1}$ = $2403.85.

38) B
Price = $100{,}000[1 + (0.05)(182/365)]^{-1}$ = $97,567.50.

39) B
Dec 29 − Jan 1 = 362 days; $P = 13{,}027.02[1 + (0.085)(362/360)]^{-1}$ = $12,001.25.

40) D
$P = 10{,}000[1 + (0.0415)(59/365)]^{-1}$ = $9933.36.

41) B
Proceeds paid by bank = $8000[1 + (0.10)(123 - 10)/365]^{-1}$ = $7759.77
Supplier earned $r = I/Pt = (7759.77 - 7750)/7750(10/365) = 0.046013$ = 4.6%.

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42) A
March 3 to Sept 3 = 184 days; $P = 12{,}482.67[1 + 0.08(184/360)]^{-1} =$ $11,992.32.

43) D
Jan 1 to Dec 29 = 363 days; $P = 13{,}027.02[1 + 0.085(363/360)]^{-1} =$ $11,998.64.

44) C
$P = 25{,}000[1 + 0.0325(51/365)]^{-1} =$ $24,886.99.

45) B
$S = 15{,}000[1 + 0.12(123/365)] =$ $15,606.57 (legal due date is Aug 7)
$P = 15{,}606.57[1 + 0.15(67/365)]^{-1} =$ $15,188.40.

46) D
$X = 25{,}000\ [\ 1 + 0.035(182/365)\ ]^{-1} =$ $24,571.18.

47) D
$301.34 = P\ (0.104)(2/12)$, solves for $P =$ $17,385.

48) A
6 months after Mar 3 is Sept 3 + 3 days = Sept 6 or 184 + 3 = 187 days
$P = 257{,}000\ [\ 1 + 0.05(187/360)]^{-1} =$ $250,494.11.

49) A
Legal due date is Oct 9; Aug 6 to Oct 9 = 64 days
$r =$ (20,769.32 - 20,419.16)/20,419.16(64/365) = 9.78%.

50) B
Note is sold after Aug 12 - July 8 = 35 days, which is 58 days before maturity
Proceeds $= 10{,}000[1 + (0.05)(58/365)]^{-1} =$ $9921.17.

51) A

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(i) $r = 10{,}000(0.015)/(9850)(60/365) = 0.0926$; so if can't borrow at less than 9.26, then you should not TRUE
(ii) Price = $5000[1 - (0.04)(30/365)] = \$4983.56$ TRUE.

52) B
$10\,383.81 = 10\,472.00[1 - (0.05)(n/365)]^{-1}$ which solves for $n = 62$ days
The date of sale is 62 days prior to Dec 15, which is October 14.

53) D
$S = 50{,}000[1 + (0.10)(123/365)] = \$51\,684.93$
$P = 51\,684.93[1 + (0.15)(90/365)]^{-1} = \$49\,841.48$.

54) B
$X = 50{,}000[1 + (0.0285)(182/365)]^{-1} = \$49{,}299.41$.

55) C
$100{,}000[1 + (0.24)(6/12)] = X[1 + (0.24)(4/12)] + X$ solves for $X = \$53{,}846.15$.

56) B
$3000[1 + (0.10)(5/12)] + 5000 = X[1 + (0.10)(6/12)] + 4000[1 + (0.10)(1/12)]^{-1}$
solves for $X = \$3960.06$.

57) C
$4000[1 + (0.09)(2/12)]^{-1} = X[1 + (0.09)(8/12)] + 2000[1 + (0.09)(16/12)]^{-1}$
solves for $X = \$2033.18$.

58) C
$800[1 + (0.06)(2/12)] + 600 + 500[1 + (0.06)(1/12)]^{-1} = X[1 + (0.06)(1/12)]$
which solves for $X = \$1896.03$.

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59) C
$4000[1 + (0.07)(6/12)] = X[1 + (0.07)(4/12)] + 2\,X[1 + (0.07)(2/12)] + 2\,X$
Solves for X = \$820.34.

60) A
$5000[1 + (0.09)(30/365)] + 6000[1 + (0.09)(90/365)]^{-1} = 4000 + X[1 + (0.09)(70/365)]^{-1}$
solves for X = \$7025.94.

61) A
$5000[1 + 0.11(20/365)] + 4000[1 + 0.11(50/365)]^{-1} = 6000 + X[1 + 0.11(90/365)]^{-1}$, solves for X = \$3051.33.

62) C
$200 + 300[1 + 0.06(5/12)]^{-1} = X[1 + 0.06(2/12)] + 2\,X[1 + 0.06(1/12)]^{-1}$, solves for X = \$164.22.

63) A
$2000 + 3000[1 + (0.04)(5/12)]^{-1} = X[1 + (0.04)(3/12)] + 3\,X[1 + (0.04)(4/12)]^{-1}$
Which solves for X = \$1246.89.

64) D
$5000[1 + (0.11)(20/365)] + 4000[1 + (0.11)(50/365)]^{-1} = 6000 + X[1 + (0.11)(90/365)]^{-1}$
Which solves for X = \$3051.34.

65) B
$X\,[1 + (0.12)(1/12)]^{-1} = 100{,}000[1 + (0.12)(4/12)] + 200{,}000[1 + (0.12)(6/12)]^{-1}$
Which solves for X = \$295,606.04.

66) B

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Note: 5000(0.12)(102/365) = 167.67 > 105, thus first payment is carried forward to next date
Thus, 5000[1 + (0.12)(175/365)] − (X + 105) = 0 solves for X = $5182.67.

67) D
P[1 + (0.12)(10/12)] = 2000[1 + (0.12)(8/12)] + 50[1 + (0.12)(4/12)] + 3000 solves for P = $4738.18.

68) B
4000[1 + (0.08)(9/12)] − 150[1 + (0.08)(6/12)] − 2500[1 + (0.08)(3/12)] = $1534.00.

69) B
20,000[1 + (0.09)(8/12)] = X[1 + (0.09)(5/12)] + X; solves for X = $10,404.91.

70) A
5000[1 + (0.12)(30/365)] − 2000 = 3049.32; 3049.32[1 + (0.12)(30/365)] − 2500 = 579.40
579.40[1 + (0.12)(t/365)] = 584.15 solves for t = 25 days.

71) B
10,000[1 + (0.15)(4/12)] − (8000 + 100) = 2400; 2400[1 + (0.15)(2/12)] = $2460.00.

72) A
15,000[1 + 0.10(9/12)] = 8000[1 + 0.10(5/12)] + 150[1 + 0.10(3/12)] + X
Solves for X = $7637.92.

73) B

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$4000[1 + r(80/365)] = 1000[1 + r(50/365)] + 2000[1 + r(20/365)] + 1026.51$
Solves for $r = 4.21\%$.

74) B
$60{,}000[1 + 0.16(20/365)] - 20{,}000 = 40{,}526.03$
$40{,}526.03[1 + 0.16(40/365] - 1500 = 39{,}736.62$
$X = 39{,}736.62[1 + 0.16(25/365)] = \$40{,}172.09$.

75) B
$5000[1 + 0.12(30/365)] - 2000 = 3049.32$
$3049.32[1 + 0.12(30/365)] - 2500 = 579.40$
$X = 579.40[1 + 0.12(t/365)] = \$613.68$; which solves for $t = 180$ days after the last payment, so that it is $180 + 60 = 240$ days from the date of the loan.

76) D
$10{,}000(0.12)(91/365) = 299.18 > 200$; payment gets carried forward
$10{,}000[1 + 0.12\ (130/365)] - (200 + Y) = 8228.67$; solves for $Y = \$1998.73$.

77) B
$2000[1 + r(90/365)] - 800[1 + r(40/365)] - 1240 = 0$; solves for $r = 9.86\%$.

78) C
$4000[1 + r(80/365)] - 2000[1 + r(30/365)] - 2026.51 = 0$; solves for $r = 3.72\%$.

79) C
$12{,}000(0.15)(3/12) = 450 > 200$; payment gets carried forward
$12{,}000[1 + 0.15\ (6/12)] - (200 + 6000) = 6700$
$X = 6700[1 + 0.15(5/12)] = \$7118.75$.

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80) D
(I) False: If a partial payment > interest due, itIS applied against the balance
(II) False: Since the final payment under the declining balance method is always higher, the interest paid will be higher.

81) A
$10000[1 + (0.07)(61/365)] = X[1 + (0.07)(41/365)] + X$, solves for X = $5038.68.

82) C
Balance in 3 months = 4000[1 + (0.08)(3/12)] - 150 = 3930
Balance in 6 months = 3930[1 + (0.08)(3/12)] - 2500 = 1508.60
Final balance = 1508.60[1 + (0.08)(3/12)] = $1538.77.

83) B
Balance in 20-days = 60,000[1 + (0.16)(20/365)] - 20,000 = 40 526.03
Balance in 60 days = 40 526.03[1 + (0.16)(40/365)] - 1500 = 39 736.62
Final balance = 39,736.62 [1 + (0.16)(25/365)] = $40,172.09.

84) A
$25{,}000[1 - (0.08)(79/360)]^{-1}$ = $25,446.73.

85) A
$2000[1 - (0.09)(2/12)] = 1200[1 - (0.09)(4/12)]^{-1} + X$; Solves for X = $732.89.

86) D
$30{,}000[1 - (0.07)(92/365)]^{-1}$ = $30,538.82.

87) A
$t = D/Sd$ = 119.63/(2119.63)(0.10) = 0.564390955 × 365 days = 206 days.

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88) A
$5000[1 - (0.095)(9/12)]^{-1} = \$5383.58.$

89) B
$P = 5712[1 - (0.105)(9/12)] = \$5262.18.$

90) C
$r = d/(1 - dt) = 0.09/[1 - 0.09(10/12)] = 0.097297 = 9.73\%.$

91) C
$I = D = S\ d\ t = 8235(0.075)(11/12) = \$566.16$; Since this is discount, it is paid up front, at the issue of the loan.

92) A
$P = 6122.30\ [\ 1 - (0.10)(63/365)] = \$6016.63.$

93) B
$4000[1 - 0.09(\ t\ /365)\ ]^{-1} = 4262.77$; solves for $t = 250$ days.

94) D
$[1 - d(200/365)]^{-1} = 1 + 0.08(100/365) + 0.10(100/365)$; solves for $d = 8.58\%$.

95) A
$P = 5127.40[1 - 0.10(63/365)] = 5038.90$
$r = 38.90/5000(30/365) = 9.47\%.$

96) B
$S = 5000[1 - 0.09(270/365)]^{-1} = \$5356.62.$

97) B
$[1 - d(200/365)]^{-1} = 1 + 0.08(200/365)$; solves for $d = 7.66\%$.

98) A
Legal due date is Oct 9, which is 105 days after date of sale
$P = 20{,}769.32[1 - 0.08(105/365)] = \$20{,}291.34.$

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99) A
$P = 3000[1 - 0.09(180/360)] = \$2865.00.$

100) C
$S = 10{,}000[1 - (0.08)(8/12)]^{-1} = \$10{,}563.38.$

101) B
Maturity value of loan = 2500(1.07) = $2675
Proceeds to Joanne = 2675[1 - (0.07)(12/12)] = 2487.75
Thus, Joanne loses 2500 - 2487.75 = $12.25 (I) is true
Bank earns = 2675 - 2487.75 = $187.25 > 175 (II) is FALSE.

102) B
$2000[1 - d\,(120/365)]^{-1} = 2032.88$, which solves for $d = 4.92\%$.

103) D
(A) is false - simple interest gives more interest for periods < one compounding period
(B) is false - higher interest rate means lower present values
(C) is false - ordinary interest always leads to more interest since you are dividing by 360 instead of 365
(D) is true.

104) A
$P = 100{,}000\ [1-(0.06)(182/360)] = \$\$96{,}966.67.$

105) C
$P = 100{,}000\ [1-(0.0415)(91-32)/360] = \$99{,}319.86.$

106) B
$P = 25{,}000\ [1-(0.025)(51/360)] = \$24{,}911.46.$

107) D
$P = 50{,}000[1-(0.035)(182/360)] = \$49{,}115.28.$

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108) A
$P = 60{,}000[1-(0.0485)(182/360)] = \$58{,}528.83$.

109) C
Balance in 3 months = 4000[1 + (0.08)(3/12)] - 150 = 3930
Balance in 6 months = 3930[1 + (0.08)(3/12)] - 2500 = 1508.60
Final balance = 1508.60[1 + (0.08)(3/12)] = \$1538.77.

110) Section Break

110.1) B
Feb 21 - Nov 10 = 103 days; $10{,}000[1 + r\,(103/365)] = 10{,}472.00$
Solves for $r = 0.16726 = 16.73\%$.

110.2) B
Feb 21 − Dec 21 = 62 days; Proceeds = $10{,}472[1 + (0.15)(62/365)]^{-1} = \$10{,}211.81$.

111) Section Break

111.1) D
Oct 7 − Apr 23 = 167 days; $S = 6000[1 + (0.105)(167/360)] = \$6292.25$.

111.2) D
$r = I/P\,t = 142.29/(6000)(80/365) = 0.108199 = 10.82\%$.

112) Section Break

112.1) C
9 months after May 15 is Feb 15 and maturity date is Feb 18 (279 days)
$P = 15{,}012.47[1 + 0.07(279/365)]^{-1} = \$14{,}250$.

112.2) C
$14{,}655.23 = 15{,}012.47[1 - d\,(132/365)]$ solves for $d = 0.065800 = 6.58\%$.

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113) Section Break

113.1) A

r = 137.50/(5000)(93/365) = 0.10793 = 10.79%.

113.2) C

P = 5137.50[1 - (0.10)(63/365)] = $5048.83.

114) Section Break

114.1) C

Note: 6000(0.10)(100/365) = 164.38 > 100, thus first payment is carried forward to next payment date: 6000[1 + (0.10)(300/365)] − 4000 − 100 = 2393.15;

X = 2393.15[1 + (0.10)(50/365)] = $2425.93.

114.2) D

6000[1 + (0.10)(350/365)] − 100[1 + (0.10)(250/365)] − 4000[1 + (0.10)(50/365)] = $2413.70.

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