Banking: How Banks Work and How to Use Them

Name _____ Date _____

Banking · Printables

Everything to print for the year: a check register, a reconciliation form, the nine project sheets, and every unit test, the midterm and the final, with answer keys at the back. Lesson worksheets A (grades 9–12) and B (grades 6–8 track), each with a key, are printed separately from each lesson page.

Scripture for each unit (KJV)

1. **Matthew 25:27**: “Thou oughtest therefore to have put my money to the exchangers, and then at my coming I should have received mine own with usury.”
2. **Proverbs 27:23**: “Be thou diligent to know the state of thy flocks, and look well to thy herds.”
3. **Luke 16:10**: “He that is faithful in that which is least is faithful also in much: and he that is unjust in the least is unjust also in much.”
4. **Proverbs 13:11**: “Wealth gotten by vanity shall be diminished: but he that gathereth by labour shall increase.”
5. **Matthew 25:21**: “His lord said unto him, Well done, thou good and faithful servant: thou hast been faithful over a few things, I will make thee ruler over many things: enter thou into the joy of thy lord.”
6. **Proverbs 22:1**: “A good name is rather to be chosen than great riches, and loving favour rather than silver and gold.”
7. **Proverbs 22:7**: “The rich ruleth over the poor, and the borrower is servant to the lender.”
8. **Proverbs 11:1**: “A false balance is abomination to the LORD: but a just weight is his delight.”
9. **Matthew 10:16**: “Behold, I send you forth as sheep in the midst of wolves: be ye therefore wise as serpents, and harmless as doves.”

Check Register

Name _____ Date _____

Banking · Copy as many as you need

Date	Description	Payment (−)	Deposit (+)	✓	Balance

Monthly Reconciliation

Name _____ Date _____

Banking · Statement vs. register

Ending balance on statement	
+ Deposits in transit (list)	
− Outstanding checks and payments (list)	
= Adjusted statement balance	
Register balance	
− Fees or charges not yet in the register	
+ Interest not yet in the register	
= Adjusted register balance (must match)	

Charges I do not recognize (report to the bank today)

Project 1.4: The First Bank of Main Street

Name _____ Date _____

Banking · Project sheet

Write a one-page plan for a small community bank, then test it with this unit’s math.

Projects use a calculator, the course notebook and free public websites; nothing needs to be bought or opened.

Materials

- Course notebook and calculator
- Optional: look up a real bank in your town on FDIC BankFind Suite (look up any insured bank)

Steps

1. Name your bank and describe your town: who lives and works there?

2. List three kinds of customers (for example, young families, a farm, a hardware store) and what each needs from a bank.

3. Choose a savings rate to pay and a loan rate to charge. Explain why the loan rate must be higher.

4. Suppose you collect $5,000,000 of deposits and lend $4,000,000. Compute your interest earned, interest paid and net interest income for a year.

5. Write three things you will do to earn and keep depositors’ trust.

Check

☐ Customers and needs listed ☐ Rates chosen and explained ☐ Net interest income computed ☐ Trust plan written

Project 2.4: Read a Real Bank's Numbers

Name _____ Date _____

Banking · Project sheet

Use FDIC BankFind Suite (look up any insured bank) to find one bank near you (search by name or city) and open its financial information.

Projects use a calculator, the course notebook and free public websites; nothing needs to be bought or opened.

Materials

- Calculator and notebook
- A computer or phone with internet access (an adult helps if needed)

Steps

1. Record the bank's name, city, total assets, total deposits and total equity (capital).

2. Check that assets ≈ liabilities + equity.

3. Compute its equity-to-assets ratio.

4. If net income is shown, compute its return on assets.

5. Write a short "examiner's note": is this bank thinly or well capitalized compared with the 8–12% range common for U.S. banks? What would you want to know next?

Check

☐ Real numbers recorded with the date ☐ Ratios computed ☐ Examiner's note written

Project 3.4: Is This Money Insured?

Name _____ Date _____

Banking · Project sheet

Look up one bank on FDIC BankFind Suite (look up any insured bank) and confirm it is FDIC-insured. Read FDIC: Understanding Deposit Insurance.

Projects use a calculator, the course notebook and free public websites; nothing needs to be bought or opened.

Materials

- Calculator and notebook
- Internet access

Steps

1. Record the bank’s name and FDIC certificate number.

2. Sample 1: one person has $180,000 in checking and $120,000 in a CD at the same bank, both single-owner. How much is uninsured?

3. Sample 2: the same person moves the CD to a second insured bank. How much is uninsured now?

4. Sample 3: list three things sold at some banks that FDIC insurance does not cover.

5. Write two sentences: why does deposit insurance make bank runs less likely?

Check

☐ Bank verified ☐ Samples 1 and 2 computed ($50,000; then $0) ☐ Not-covered list correct ☐ Explanation written

Project 4.4: A Month of Banking

Name _____ Date _____

Banking · Project sheet

A parent or teacher plays the bank. The student keeps the register and reconciles the statement.

Projects use a calculator, the course notebook and free public websites; nothing needs to be bought or opened.

Materials

- A printed blank register (or a notebook page with columns: date, description, payment, deposit, balance)
- Calculator

Steps

1. Start with a $600 balance. Record a $1,200 paycheck, rent of $650, a $45 phone bill, groceries of $86.40 and $52.17, and a $30 transfer to savings.

2. The “bank” writes a statement that leaves off one deposit and one payment and adds a $5 paper-statement fee.

3. Reconcile: statement balance + deposits in transit − outstanding items. Record the fee.

4. Write down the two habits that would prevent an overdraft in this account.

Check

☐ Register balances to the cent ☐ Reconciliation matches ☐ Fee recorded ☐ Habits listed

Project 5.4: Early Saver, Late Saver

Name _____ Date _____

Banking · Project sheet

Use the future-value formula, and check with Investor.gov: Compound Interest Calculator.

Projects use a calculator, the course notebook and free public websites; nothing needs to be bought or opened.

Materials

- Calculator or spreadsheet
- Notebook

Steps

1. Saver A deposits $100 a month from age 18 to 28, then stops but leaves the money in. Saver B deposits $100 a month from 28 to 65. Use 6% a year compounded monthly.

2. Compute A’s balance at 28, then grow it to 65 with the compound-interest formula.

3. Compute B’s balance at 65.

4. Compare total deposits and final balances. Write a paragraph on what this teaches about time and faithfulness.

Check

☐ Both balances computed ☐ Total deposits compared ☐ Reflection written

Project 6.4: A Plan for a Good Name

Name _____ Date _____

Banking · Project sheet

Read CFPB: Credit Reports and Scores and FTC: Free Credit Reports.

Projects use a calculator, the course notebook and free public websites; nothing needs to be bought or opened.

Materials

- Notebook and calculator

Steps

1. List three ways a young adult can start a credit history (for example, becoming an authorized user, a secured card, a credit-builder loan) and one risk of each.

2. Write the five FICO factors with their weights and one habit for each.

3. Sample: limits of $1,000 and $2,500 with balances of $300 and $450. Compute utilization. What payment brings it under 10%?

4. Sample: a $2,000 balance at 24% APR. Compare months to payoff at $60 and at $150 a month.

5. Set a calendar reminder to check your free reports at AnnualCreditReport.com.

Check

☐ Starter options and risks listed ☐ Factors and habits ☐ Utilization computed ☐ Payoff comparison

Project 7.4: 15 Years or 30?

Name _____ Date _____

Banking · Project sheet

Read the CFPB guide CFPB: Buying a House.

Projects use a calculator, the course notebook and free public websites; nothing needs to be bought or opened.

Materials

- Calculator or spreadsheet
- Notebook

Steps

1. Home price $350,000 with 20% down. Find the loan amount.
2. Loan A: 30 years at 6.5%. Loan B: 15 years at 5.875%. Compute each monthly payment.
3. Compute the total interest on each.
4. The family earns $96,000 a year. Do both payments fit the 28% guideline (add $450 a month for taxes and insurance)?
5. Write a one-paragraph recommendation that weighs payment, total cost and flexibility.

Check

☐ Loan amount $280,000 ☐ Both payments and total interest computed ☐ 28% test applied ☐ Recommendation written

Project 8.4: Bank a Small Business

Name _____ Date _____

Banking · Project sheet

Use a business from Seven Small Businesses or one you know. Read SBA: Loans.

Projects use a calculator, the course notebook and free public websites; nothing needs to be bought or opened.

Materials

- Calculator and notebook

Steps

1. List the accounts and services the business needs and why.

2. It wants a $60,000 five-year term loan at 9% for equipment. Compute the payment and the yearly debt service.

3. Its cash available for debt is $22,000 a year. Compute DSCR. Would a bank likely approve?

4. It expects $18,000 a month in card sales averaging $24. Compare a processor at 2.6% + $0.10 with one at 2.9% + $0.30.

5. Write a one-page “loan request letter” to the bank.

Check

☐ Accounts and services justified ☐ Payment and DSCR computed ☐ Processors compared ☐ Letter written

Project 9.4: Run a Bank for a Year

Name _____ Date _____

Banking · Project sheet

A capstone that uses every unit. Present your bank to a parent, teacher or panel as if they were its board of directors.

Projects use a calculator, the course notebook and free public websites; nothing needs to be bought or opened.

Materials

- Calculator or spreadsheet
- Notebook or slides

Steps

1. Start with $10,000,000 in deposits at 2% and $1,000,000 of owners' capital. Lend $8,000,000 at 7% and hold the rest in cash and Treasury bonds earning 4%.
2. Operating costs are $250,000; fee income is $60,000; 1% of loans default. Compute profit, ROA and equity-to-assets.
3. Stress test: defaults rise to 5% and deposit rates rise to 3.5%. Recompute.
4. Check your deposit insurance message: what would you tell a customer with $400,000 in single-owner accounts?
5. Present a one-page report to the "board": results, risks, your fraud controls and one way your bank serves its town.

Check

☐ Base-year results computed ☐ Stress test computed ☐ Insurance advice correct ☐ Board report presented

Unit 1 Test: Why Banks Exist

Name _____ Date _____

Banking · A calculator is allowed · show your work

1. A saver keeps $20,000 in a savings account that pays 2.5% simple interest a year. How much interest does she earn in 2 years?

2. A saver keeps $10,500 in a savings account that pays 0.5% simple interest a year. How much interest does she earn in 1 year?

3. A small bank holds $8,500,000 in deposits and pays savers 2.0% a year. It lends $7,650,000 to borrowers at 5.5% a year. For one year, what is the bank’s net interest income (interest earned minus interest paid)?

4. A small bank holds $8,900,000 in deposits and pays savers 3.0% a year. It lends $5,340,000 to borrowers at 7.5% a year. For one year, what is the bank’s net interest income (interest earned minus interest paid)?

5. A saver keeps $1,250.00 in a savings account that pays 4.4% simple interest a year. How much interest does she earn in 2 years?

6. A saver keeps $1,250.00 in a savings account that pays 4.4% simple interest a year. How much interest does she earn in 2 years?

7. A small bank holds $4,600,000 in deposits and pays savers 1.0% a year. It lends $3,680,000 to borrowers at 7.0% a year. For one year, what is the bank’s net interest income (interest earned minus interest paid)?

8. A small bank holds $3,700,000 in deposits and pays savers 3.0% a year. It lends $3,330,000 to borrowers at 8.5% a year. For one year, what is the bank’s net interest income (interest earned minus interest paid)?

Unit 2 Test: The Bank’s Balance Sheet and Profit

Name _____ Date _____

Banking · A calculator is allowed · show your work

1. A bank’s balance sheet shows cash and reserves $16,000,000, securities $80,000,000 and loans $231,000,000. It owes depositors $287,000,000 and has other borrowings of $16,000,000. What is the owners’ equity (capital)?

2. A bank earned $11,270,000.00 of interest and paid $4,025,000 of interest last year on $161,000,000 of earning assets (loans and securities). What is its net interest margin (NIM), as a percent?

3. A bank has total assets of $482,000,000 and equity (capital) of $43,000,000. What is its equity-to-assets (leverage) ratio, as a percent?

4. A bank with $800,000,000 of assets earned a profit of $8,270,000 after taxes. What is its return on assets (ROA), as a percent?

5. A bank’s balance sheet shows cash and reserves $11,000,000, securities $36,000,000 and loans $173,000,000. It owes depositors $193,000,000 and has other borrowings of $8,000,000. What is the owners’ equity (capital)?

6. A bank earned $6,720,000 of interest and paid $2,800,000 of interest last year on $112,000,000 of earning assets (loans and securities). What is its net interest margin (NIM), as a percent?

7. A bank has total assets of $168,000,000 and equity (capital) of $19,000,000. What is its equity-to-assets (leverage) ratio, as a percent?

8. A bank with $883,000,000 of assets earned a profit of $12,450,000 after taxes. What is its return on assets (ROA), as a percent?

Unit 3 Test: Reserves, the Fed and Deposit Insurance

Name _____ Date _____

Banking · A calculator is allowed · show your work

1. Suppose a rule required banks to hold 8% of deposits as reserves. (The U.S. set this requirement to 0% in March 2020; many countries and textbooks still use one.) A bank has $12,500,000 in deposits and $1,500,000 in reserves. How much are its excess reserves?

2. In the simple textbook model, every bank lends out everything except a required reserve of 20%, and every loan is redeposited. If $200,000 of new reserves enters the system, what is the most that total deposits can grow?

3. Pat has single-owner accounts (no joint owners or beneficiaries) of $30,000 and $45,000 at Bank A and $345,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat’s money is NOT insured?

4. Pat has single-owner accounts (no joint owners or beneficiaries) of $170,000 and $170,000 at Bank A and $340,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat’s money is NOT insured?

5. Suppose a rule required banks to hold 8% of deposits as reserves. (The U.S. set this requirement to 0% in March 2020; many countries and textbooks still use one.) A bank has $49,500,000 in deposits and $5,940,000 in reserves. How much are its excess reserves?

6. In the simple textbook model, every bank lends out everything except a required reserve of 8%, and every loan is redeposited. If $495,000 of new reserves enters the system, what is the most that total deposits can grow?

7. Pat has single-owner accounts (no joint owners or beneficiaries) of $140,000 and $100,000 and $35,000 at Bank A and $115,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat’s money is NOT insured?

8. Pat has single-owner accounts (no joint owners or beneficiaries) of $260,000 and $130,000 and $205,000 at Bank A and $295,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat’s money is NOT insured?

Unit 4 Test: Checking and Savings Accounts

Name _____ Date _____

Banking · A calculator is allowed · show your work

1. A check register starts at $1,275.92. Record these in order: deposit $220.30; deposit $385.27; deposit $176.43; debit $244.89; deposit $154.99; debit $366.57. What is the ending balance?

2. Your bank statement shows a balance of $2,626.39. You made deposits of $334.78 and $560.96 that the statement does not show yet, and checks or payments of $245.08, $70.58, $75.47 have not cleared. What should your register balance be?

3. Your checking account has $49.91. You signed up for overdraft coverage, and the bank charges $25.00 each time a purchase takes the balance below zero (or deeper below zero). You make debit-card purchases of $24.43, $55.68, $45.28, $86.65, in that order. What is the final balance?

4. A check register starts at $335.45. Record these in order: deposit $351.87; debit $167.11; deposit $337.41; debit $256.70; debit $321.88; deposit $253.41. What is the ending balance?

5. A check register starts at $1,171.42. Record these in order: deposit $342.50; deposit $382.95; debit $368.38; deposit $361.46; deposit $352.93; deposit $171.55. What is the ending balance?

6. Your bank statement shows a balance of $452.60. You made deposits of $501.61 and $246.71 that the statement does not show yet, and checks or payments of $11.00, $102.43, $280.18 have not cleared. What should your register balance be?

7. Your checking account has $88.39. You signed up for overdraft coverage, and the bank charges $25.00 each time a purchase takes the balance below zero (or deeper below zero). You make debit-card purchases of $52.84, $71.82, $31.16, $32.80, in that order. What is the final balance?

8. A check register starts at $463.27. Record these in order: deposit $181.71; deposit $51.74; deposit $105.76; debit $146.47; debit $302.43; debit $327.79. What is the ending balance?

Unit 5 Test: Interest, APR and Compound Interest

Name _____ Date _____

Banking · A calculator is allowed · show your work

1. A loan of $21,500 charges 6.2% simple interest a year for 2 years. How much interest is owed in all?

2. $11,750 is deposited at 8% interest compounded once a year. Nothing is added or withdrawn. What is the balance after 10 years?

3. An account’s stated annual rate is 5.5%, compounded monthly. What is the annual percentage yield (APY), the rate actually earned in a year? Round to two decimals.

4. You deposit $150.00 at the end of every month into an account earning 4% a year, compounded monthly. What is the balance after 30 years?

5. A loan of $14,500 charges 6.2% simple interest a year for 3 years. How much interest is owed in all?

6. $8,250.00 is deposited at 3% interest compounded quarterly. Nothing is added or withdrawn. What is the balance after 25 years?

7. An account’s stated annual rate is 4.8%, compounded monthly. What is the annual percentage yield (APY), the rate actually earned in a year? Round to two decimals.

8. You deposit $300.00 at the end of every month into an account earning 4% a year, compounded monthly. What is the balance after 30 years?

Unit 6 Test: Credit and How Banks Lend

Name _____ Date _____

Banking · A calculator is allowed · show your work

1. A loan applicant earns $10,000 a month before taxes. Monthly debt payments are $1,450.00, $250.00, $550.00. What is the debt-to-income (DTI) ratio? Round to one decimal.

2. You have credit cards with limits of $9,500.00, $4,500.00, $3,000.00 and balances of $1,900.00, $3,375.00, $2,250.00. What is your overall credit utilization? Round to one decimal.

3. A credit card has an APR of 22.49%. About how much interest is charged for one month on an unpaid balance of $879.47? (Use APR ÷ 12 as the monthly rate.)

4. You have credit cards with limits of $5,000.00, $12,500, $14,000 and balances of $1,000.00, $6,250.00, $7,000.00. What is your overall credit utilization? Round to one decimal.

5. A loan applicant earns $9,250.00 a month before taxes. Monthly debt payments are $475.00, $1,450.00, $50.00. What is the debt-to-income (DTI) ratio? Round to one decimal.

6. You have credit cards with limits of $5,000.00, $13,500, $12,000 and balances of $3,750.00, $2,700.00, $9,000.00. What is your overall credit utilization? Round to one decimal.

7. A credit card has an APR of 19.99%. About how much interest is charged for one month on an unpaid balance of $4,126.75? (Use APR ÷ 12 as the monthly rate.)

8. You have credit cards with limits of $10,500, $13,500, $2,500.00 and balances of $5,250.00, $675.00, $1,875.00. What is your overall credit utilization? Round to one decimal.

Unit 7 Test: Loans and Mortgages

Name _____ Date _____

Banking · A calculator is allowed · show your work

1. Find the monthly payment on a 3-year car loan of $18,500 at 7.9% APR.

2. The first monthly payment on a $305,000 loan at 6.5% APR is $2,656.88. How much of that first payment goes to principal (paying down the loan)?

3. A family buys a home for $835,000 with a 20% down payment. What is the loan amount? (Its loan-to-value ratio is 80%; most conventional loans above 80% require private mortgage insurance.)

4. Find the monthly payment on a 5-year car loan of $36,000 at 4.9% APR.

5. Find the monthly payment on a 30-year fixed-rate mortgage of $430,000 at 5.5% APR.

6. The first monthly payment on a $375,000 loan at 7.0% APR is $3,370.61. How much of that first payment goes to principal (paying down the loan)?

7. A family buys a home for $355,000 with a 3.5% down payment. What is the loan amount? (Its loan-to-value ratio is 96.5%; most conventional loans above 80% require private mortgage insurance.)

8. Find the monthly payment on a 15-year fixed-rate mortgage of $535,000 at 7.0% APR.

Unit 8 Test: Business Banking

Name _____ Date _____

Banking · A calculator is allowed · show your work

1. A small business has current assets (cash, receivables, inventory) of $258,000 and current liabilities (bills and short-term debt due within a year) of $355,000. What is its working capital?

2. A bakery borrows $50,000 to buy ovens, on a 5-year term loan at 10.5% APR with monthly payments. What is the monthly payment?

3. A business draws $24,000 on its line of credit at 12.0% APR, charged daily (APR ÷ 365 per day). It repays the full draw after 30 days. How much interest does it owe?

4. A shop runs 1050 card sales in a month averaging $77.95 each. Its processor charges 2.9% of each sale plus $0.15 per transaction. What are the month’s processing fees?

5. A small business has current assets (cash, receivables, inventory) of $885,000 and current liabilities (bills and short-term debt due within a year) of $376,000. What is its working capital?

6. A bakery borrows $90,000 to buy ovens, on a 7-year term loan at 10.5% APR with monthly payments. What is the monthly payment?

7. A business draws $71,000 on its line of credit at 12.0% APR, charged daily (APR ÷ 365 per day). It repays the full draw after 17 days. How much interest does it owe?

8. A shop runs 2600 card sales in a month averaging $81.65 each. Its processor charges 2.9% of each sale plus $0.05 per transaction. What are the month’s processing fees?

Unit 9 Test: Fraud, Scams and the Capstone

Name _____ Date _____

Banking · A calculator is allowed · show your work

1. Under the federal Electronic Fund Transfer Act (Regulation E), your liability for unauthorized debit-card charges after a card is lost or stolen depends on how fast you report it. Someone used your stolen debit card for $450.00. You learned of the theft the day it happened and reported it 45 business days later, well within 60 days of your statement. All the charges were made after the first two business days, before you reported. What is the most you can be held responsible for?

2. A stranger who “overpaid” for something you sold online sends a check for $3,650.00 and asks you to send back $3,050.00 by gift cards. The bank makes the funds available, you send the money, and a week later the check is returned as counterfeit. The bank takes back the $3,650.00 and charges a $25.00 returned-item fee. How much have you lost?

3. Under the federal Electronic Fund Transfer Act (Regulation E), your liability for unauthorized debit-card charges after a card is lost or stolen depends on how fast you report it. Someone used your stolen debit card for $220.00. You learned of the theft the day it happened and reported it 20 business days later, well within 60 days of your statement. All the charges were made after the first two business days, before you reported. What is the most you can be held responsible for?

4. Run your own bank for a year. You take $93,000,000 in deposits at 2.5%, lend $74,400,000 at 7.0%, and 2% of the loans default (are never repaid). Operating costs are $1,860,000. What is the bank’s profit before taxes (negative means a loss)?

5. Under the federal Electronic Fund Transfer Act (Regulation E), your liability for unauthorized debit-card charges after a card is lost or stolen depends on how fast you report it. Someone used your stolen debit card for $2,570.00. You learned of the theft the day it happened and reported it 2 business days later, well within 60 days of your statement. What is the most you can be held responsible for?

6. A stranger who “overpaid” for something you sold online sends a check for $1,550.00 and asks you to send back $1,150.00 by gift cards. The bank makes the funds available, you send the money, and a week later the check is returned as counterfeit. The bank takes back the $1,550.00 and charges a $10.00 returned-item fee. How much have you lost?

7. Under the federal Electronic Fund Transfer Act (Regulation E), your liability for unauthorized debit-card charges after a card is lost or stolen depends on how fast you report it. Someone used your stolen debit card for $1,840.00. You learned of the theft the day it happened and reported it 2 business days later, well within 60 days of your statement. What is the most you can be held responsible for?

8. Run your own bank for a year. You take $91,000,000 in deposits at 1.5%, lend $72,800,000 at 6.5%, and 3% of the loans default (are never repaid). Operating costs are $2,275,000. What is the bank’s profit before taxes (negative means a loss)?

Midterm Exam

Name _____ Date _____

Banking · A calculator is allowed · show your work

1. A saver keeps $4,250.00 in a savings account that pays 1.25% simple interest a year. How much interest does she earn in 3 years?

2. A saver keeps $14,750 in a savings account that pays 4.4% simple interest a year. How much interest does she earn in 3 years?

3. A small bank holds $4,800,000 in deposits and pays savers 1.0% a year. It lends $4,320,000 to borrowers at 8.0% a year. For one year, what is the bank's net interest income (interest earned minus interest paid)?

4. A small bank holds $5,900,000 in deposits and pays savers 0.5% a year. It lends $3,540,000 to borrowers at 5.5% a year. For one year, what is the bank's net interest income (interest earned minus interest paid)?

5. A bank's balance sheet shows cash and reserves $9,000,000, securities $27,000,000 and loans $314,000,000. It owes depositors $297,000,000 and has other borrowings of $15,000,000. What is the owners' equity (capital)?

6. A bank earned $4,620,000 of interest and paid $1,540,000 of interest last year on $77,000,000 of earning assets (loans and securities). What is its net interest margin (NIM), as a percent?

7. A bank has total assets of $740,000,000 and equity (capital) of $93,000,000. What is its equity-to-assets (leverage) ratio, as a percent?

8. A bank with $680,000,000 of assets earned a profit of $9,280,000 after taxes. What is its return on assets (ROA), as a percent?

9. Suppose a rule required banks to hold 10% of deposits as reserves. (The U.S. set this requirement to 0% in March 2020; many countries and textbooks still use one.) A bank has $13,000,000 in deposits and $1,950,000 in reserves. How much are its excess reserves?

10. In the simple textbook model, every bank lends out everything except a required reserve of 20%, and every loan is redeposited. If $135,000 of new reserves enters the system, what is the most that total deposits can grow?

11. Pat has single-owner accounts (no joint owners or beneficiaries) of $40,000 and $35,000 and $30,000 at Bank A and $375,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat’s money is NOT insured?

12. Pat has single-owner accounts (no joint owners or beneficiaries) of $55,000 and $105,000 and $235,000 at Bank A and $50,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat’s money is NOT insured?

13. A check register starts at $1,406.82. Record these in order: debit $115.22; deposit $399.29; deposit $33.85; deposit $220.87; deposit $391.29; debit $109.53. What is the ending balance?

14. Your bank statement shows a balance of $2,900.64. You made deposits of $324.92 and $384.04 that the statement does not show yet, and checks or payments of $44.26, $164.68, $167.82 have not cleared. What should your register balance be?

15. Your checking account has $109.26. You signed up for overdraft coverage, and the bank charges $25.00 each time a purchase takes the balance below zero (or deeper below zero). You make debit-card purchases of $60.47, $60.54, $63.23, $36.00, in that order. What is the final balance?

16. A check register starts at $384.33. Record these in order: debit $341.55; debit $219.65; deposit $32.95; debit $308.66; deposit $213.02; deposit $392.56. What is the ending balance?

Final Exam

Name _____ Date _____

Banking · A calculator is allowed · show your work

1. A saver keeps $14,250 in a savings account that pays 4.4% simple interest a year. How much interest does she earn in 3 years?

2. A saver keeps $5,750.00 in a savings account that pays 0.5% simple interest a year. How much interest does she earn in 3 years?

3. A small bank holds $8,300,000 in deposits and pays savers 2.5% a year. It lends $5,810,000 to borrowers at 8.0% a year. For one year, what is the bank's net interest income (interest earned minus interest paid)?

4. A small bank holds $8,700,000 in deposits and pays savers 0.5% a year. It lends $6,960,000 to borrowers at 6.5% a year. For one year, what is the bank's net interest income (interest earned minus interest paid)?

5. A bank's balance sheet shows cash and reserves $5,000,000, securities $81,000,000 and loans $234,000,000. It owes depositors $256,000,000 and has other borrowings of $19,000,000. What is the owners' equity (capital)?

6. A bank earned $13,580,000.00 of interest and paid $4,850,000 of interest last year on $194,000,000 of earning assets (loans and securities). What is its net interest margin (NIM), as a percent?

7. A bank has total assets of $313,000,000 and equity (capital) of $41,000,000. What is its equity-to-assets (leverage) ratio, as a percent?

8. A bank with $715,000,000 of assets earned a profit of $11,370,000 after taxes. What is its return on assets (ROA), as a percent?

9. Suppose a rule required banks to hold 10% of deposits as reserves. (The U.S. set this requirement to 0% in March 2020; many countries and textbooks still use one.) A bank has $47,500,000 in deposits and $8,550,000 in reserves. How much are its excess reserves?

10. In the simple textbook model, every bank lends out everything except a required reserve of 8%, and every loan is redeposited. If $390,000 of new reserves enters the system, what is the most that total deposits can grow?

11. Pat has single-owner accounts (no joint owners or beneficiaries) of $200,000 and $65,000 and $40,000 at Bank A and $55,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat's money is NOT insured?

12. Pat has single-owner accounts (no joint owners or beneficiaries) of $250,000 and $185,000 and $105,000 at Bank A and $230,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat's money is NOT insured?

13. A check register starts at $1,459.27. Record these in order: deposit $386.63; debit $88.43; deposit $90.33; debit $267.13; debit $197.72; debit $25.35. What is the ending balance?

14. Your bank statement shows a balance of $902.46. You made deposits of $233.16 and $21.87 that the statement does not show yet, and checks or payments of $10.40, $158.51, $280.56 have not cleared. What should your register balance be?

15. Your checking account has $137.26. You signed up for overdraft coverage, and the bank charges $35.00 each time a purchase takes the balance below zero (or deeper below zero). You make debit-card purchases of $85.94, $83.71, $47.79, $59.07, in that order. What is the final balance?

16. A check register starts at $1,354.46. Record these in order: deposit $25.21; deposit $15.64; deposit $211.46; deposit $174.31; debit $142.40; deposit $385.51. What is the ending balance?

17. A loan of $25,000 charges 6.2% simple interest a year for 3 years. How much interest is owed in all?

18. $19,750 is deposited at 6% interest compounded quarterly. Nothing is added or withdrawn. What is the balance after 40 years?

19. An account’s stated annual rate is 5.5%, compounded monthly. What is the annual percentage yield (APY), the rate actually earned in a year? Round to two decimals.

20. You deposit $300.00 at the end of every month into an account earning 4% a year, compounded monthly. What is the balance after 10 years?

21. A loan applicant earns $7,500.00 a month before taxes. Monthly debt payments are $1,700.00, $1,150.00, $1,375.00. What is the debt-to-income (DTI) ratio? Round to one decimal.

22. You have credit cards with limits of $8,500.00, $2,000.00, $13,500 and balances of $2,550.00, $200.00, $4,050.00. What is your overall credit utilization? Round to one decimal.

23. A credit card has an APR of 22.49%. About how much interest is charged for one month on an unpaid balance of $4,454.11? (Use APR ÷ 12 as the monthly rate.)

24. You have credit cards with limits of $12,000, $10,500, $1,000.00 and balances of $6,000.00, $2,100.00, $200.00. What is your overall credit utilization? Round to one decimal.

Unit 1 Test Key

Name _____ Date _____

Banking · Answers with steps

1. A saver keeps $20,000 in a savings account that pays 2.5% simple interest a year. How much interest does she earn in 2 years?
   $1,000.00
   1. Simple interest: I = P × r × t
   2. I = $20,000 × 0.025 × 2 = $1,000.00

2. A saver keeps $10,500 in a savings account that pays 0.5% simple interest a year. How much interest does she earn in 1 year?
   $52.50
   1. Simple interest: I = P × r × t
   2. I = $10,500 × 0.005 × 1 = $52.50

3. A small bank holds $8,500,000 in deposits and pays savers 2.0% a year. It lends $7,650,000 to borrowers at 5.5% a year. For one year, what is the bank's net interest income (interest earned minus interest paid)?
   $250,750.00
   1. Interest earned on loans: $7,650,000 × 5.5% = $420,750
   2. Interest paid to savers: $8,500,000 × 2.0% = $170,000
   3. Net interest income: $420,750 − $170,000 = $250,750

4. A small bank holds $8,900,000 in deposits and pays savers 3.0% a year. It lends $5,340,000 to borrowers at 7.5% a year. For one year, what is the bank's net interest income (interest earned minus interest paid)?
   $133,500.00
   1. Interest earned on loans: $5,340,000 × 7.5% = $400,500
   2. Interest paid to savers: $8,900,000 × 3.0% = $267,000
   3. Net interest income: $400,500 − $267,000 = $133,500

5. A saver keeps $1,250.00 in a savings account that pays 4.4% simple interest a year. How much interest does she earn in 2 years?
   $110.00
   1. Simple interest: I = P × r × t
   2. I = $1,250.00 × 0.044 × 2 = $110.00

6. A saver keeps $1,250.00 in a savings account that pays 4.4% simple interest a year. How much interest does she earn in 2 years?
   $110.00
   1. Simple interest: I = P × r × t
   2. I = $1,250.00 × 0.044 × 2 = $110.00

7. A small bank holds $4,600,000 in deposits and pays savers 1.0% a year. It lends $3,680,000 to borrowers at 7.0% a year. For one year, what is the bank's net interest income (interest earned minus interest paid)?
   $211,600.00
   1. Interest earned on loans: $3,680,000 × 7.0% = $257,600
   2. Interest paid to savers: $4,600,000 × 1.0% = $46,000
   3. Net interest income: $257,600 − $46,000 = $211,600

8. A small bank holds $3,700,000 in deposits and pays savers 3.0% a year. It lends $3,330,000 to borrowers at 8.5% a year. For one year, what is the bank's net interest income (interest earned minus interest paid)?
   $172,050.00
   1. Interest earned on loans: $3,330,000 × 8.5% = $283,050
   2. Interest paid to savers: $3,700,000 × 3.0% = $111,000
   3. Net interest income: $283,050 − $111,000 = $172,050

Unit 2 Test Key

Name _____ Date _____

Banking · Answers with steps

1. A bank's balance sheet shows cash and reserves $16,000,000, securities $80,000,000 and loans $231,000,000. It owes depositors $287,000,000 and has other borrowings of $16,000,000. What is the owners' equity (capital)?
   $24,000,000.00
   1. Total assets: $16,000,000 + $80,000,000 + $231,000,000 = $327,000,000
   2. Total liabilities: $287,000,000 + $16,000,000 = $303,000,000
   3. Equity = assets − liabilities = $327,000,000 − $303,000,000 = $24,000,000

2. A bank earned $11,270,000.00 of interest and paid $4,025,000 of interest last year on $161,000,000 of earning assets (loans and securities). What is its net interest margin (NIM), as a percent?
   4.50%
   1. Net interest income: $11,270,000.00 − $4,025,000 = $7,245,000.00
   2. NIM = net interest income ÷ earning assets = $7,245,000.00 ÷ $161,000,000 = 0.0450
   3. As a percent: 4.50%

3. A bank has total assets of $482,000,000 and equity (capital) of $43,000,000. What is its equity-to-assets (leverage) ratio, as a percent?
   8.92%
   1. Ratio = equity ÷ assets = $43,000,000 ÷ $482,000,000 = 0.0892
   2. As a percent: 8.92%
   3. So about 11.2 dollars of assets rest on each dollar of the owners' money.

4. A bank with $800,000,000 of assets earned a profit of $8,270,000 after taxes. What is its return on assets (ROA), as a percent?
   1.03%
   1. ROA = profit ÷ assets = $8,270,000 ÷ $800,000,000 = 0.0103
   2. As a percent: 1.03%

5. A bank's balance sheet shows cash and reserves $11,000,000, securities $36,000,000 and loans $173,000,000. It owes depositors $193,000,000 and has other borrowings of $8,000,000. What is the owners' equity (capital)?
   $19,000,000.00
   1. Total assets: $11,000,000 + $36,000,000 + $173,000,000 = $220,000,000
   2. Total liabilities: $193,000,000 + $8,000,000 = $201,000,000
   3. Equity = assets − liabilities = $220,000,000 − $201,000,000 = $19,000,000

6. A bank earned $6,720,000 of interest and paid $2,800,000 of interest last year on $112,000,000 of earning assets (loans and securities). What is its net interest margin (NIM), as a percent?
   3.50%
   1. Net interest income: $6,720,000 − $2,800,000 = $3,920,000
   2. NIM = net interest income ÷ earning assets = $3,920,000 ÷ $112,000,000 = 0.0350
   3. As a percent: 3.50%

7. A bank has total assets of $168,000,000 and equity (capital) of $19,000,000. What is its equity-to-assets (leverage) ratio, as a percent?
   11.31%
   1. Ratio = equity ÷ assets = $19,000,000 ÷ $168,000,000 = 0.1131
   2. As a percent: 11.31%
   3. So about 8.8 dollars of assets rest on each dollar of the owners' money.

8. A bank with $883,000,000 of assets earned a profit of $12,450,000 after taxes. What is its return on assets (ROA), as a percent?
   1.41%
   1. ROA = profit ÷ assets = $12,450,000 ÷ $883,000,000 = 0.0141
   2. As a percent: 1.41%

Unit 3 Test Key

Name _____ Date _____

Banking · Answers with steps

1. Suppose a rule required banks to hold 8% of deposits as reserves. (The U.S. set this requirement to 0% in March 2020; many countries and textbooks still use one.) A bank has $12,500,000 in deposits and $1,500,000 in reserves. How much are its excess reserves?
   $500,000.00
   1. Required reserves: 8% × $12,500,000 = $1,000,000
   2. Excess reserves: $1,500,000 − $1,000,000 = $500,000

2. In the simple textbook model, every bank lends out everything except a required reserve of 20%, and every loan is redeposited. If $200,000 of new reserves enters the system, what is the most that total deposits can grow?
   $1,000,000.00
   1. Simple money multiplier = 1 ÷ reserve ratio = 1 ÷ 0.2 = 5
   2. Maximum new deposits = $200,000 × 5 = $1,000,000
   3. Real banking falls short of this maximum: people hold cash, banks keep extra reserves, and lending depends on willing, creditworthy borrowers.

3. Pat has single-owner accounts (no joint owners or beneficiaries) of $30,000 and $45,000 at Bank A and $345,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat's money is NOT insured?
   $95,000.00
   1. Bank A total (same owner, same category, so the accounts are added): $30,000 + $45,000 = $75,000
   2. Bank A: $75,000 is at or under $250,000, so it is fully insured ($0.00 uninsured).
   3. Bank B uninsured: $345,000 − $250,000 = $95,000
   4. Total uninsured: $0.00 + $95,000 = $95,000

4. Pat has single-owner accounts (no joint owners or beneficiaries) of $170,000 and $170,000 at Bank A and $340,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat's money is NOT insured?
   $180,000.00
   1. Bank A total (same owner, same category, so the accounts are added): $170,000 + $170,000 = $340,000
   2. Bank A uninsured: $340,000 − $250,000 = $90,000
   3. Bank B uninsured: $340,000 − $250,000 = $90,000
   4. Total uninsured: $90,000 + $90,000 = $180,000

5. Suppose a rule required banks to hold 8% of deposits as reserves. (The U.S. set this requirement to 0% in March 2020; many countries and textbooks still use one.) A bank has $49,500,000 in deposits and $5,940,000 in reserves. How much are its excess reserves?
   $1,980,000.00
   1. Required reserves: 8% × $49,500,000 = $3,960,000
   2. Excess reserves: $5,940,000 − $3,960,000 = $1,980,000

6. In the simple textbook model, every bank lends out everything except a required reserve of 8%, and every loan is redeposited. If $495,000 of new reserves enters the system, what is the most that total deposits can grow?
   $6,187,500.00
   1. Simple money multiplier = 1 ÷ reserve ratio = 1 ÷ 0.08 = 12.5
   2. Maximum new deposits = $495,000 × 12.5 = $6,187,500
   3. Real banking falls short of this maximum: people hold cash, banks keep extra reserves, and lending depends on willing, creditworthy borrowers.

7. Pat has single-owner accounts (no joint owners or beneficiaries) of $140,000 and $100,000 and $35,000 at Bank A and $115,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat's money is NOT insured?
   $25,000.00
   1. Bank A total (same owner, same category, so the accounts are added): $140,000 + $100,000 + $35,000 = $275,000
   2. Bank A uninsured: $275,000 − $250,000 = $25,000
   3. Bank B: $115,000 is at or under $250,000, so it is fully insured ($0.00 uninsured).
   4. Total uninsured: $25,000 + $0.00 = $25,000

8. Pat has single-owner accounts (no joint owners or beneficiaries) of $260,000 and $130,000 and $205,000 at Bank A and $295,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat’s money is NOT insured?
   $390,000.00
   1. Bank A total (same owner, same category, so the accounts are added): $260,000 + $130,000 + $205,000 = $595,000
   2. Bank A uninsured: $595,000 − $250,000 = $345,000
   3. Bank B uninsured: $295,000 − $250,000 = $45,000
   4. Total uninsured: $345,000 + $45,000 = $390,000

Unit 4 Test Key

Name _____ Date _____

Banking · Answers with steps

1. A check register starts at $1,275.92. Record these in order: deposit $220.30; deposit $385.27; deposit $176.43; debit $244.89; deposit $154.99; debit $366.57. What is the ending balance?
   $1,601.45
   1. $1,275.92 + $220.30 = $1,496.22
   2. $1,496.22 + $385.27 = $1,881.49
   3. $1,881.49 + $176.43 = $2,057.92
   4. $2,057.92 − $244.89 = $1,813.03
   5. $1,813.03 + $154.99 = $1,968.02
   6. $1,968.02 − $366.57 = $1,601.45

2. Your bank statement shows a balance of $2,626.39. You made deposits of $334.78 and $560.96 that the statement does not show yet, and checks or payments of $245.08, $70.58, $75.47 have not cleared. What should your register balance be?
   $3,131.00
   1. Add deposits in transit: $2,626.39 + $895.74 = $3,522.13
   2. Subtract outstanding items: $245.08 + $70.58 + $75.47 = $391.13
   3. Adjusted balance: $3,522.13 − $391.13 = $3,131.00

3. Your checking account has $49.91. You signed up for overdraft coverage, and the bank charges $25.00 each time a purchase takes the balance below zero (or deeper below zero). You make debit-card purchases of $24.43, $55.68, $45.28, $86.65, in that order. What is the final balance?
   −$237.13
   1. $49.91 − $24.43 = $25.48
   2. $25.48 − $55.68 = −$30.20; below zero, so a $25.00 fee: −$30.20 − $25.00 = −$55.20
   3. −$55.20 − $45.28 = −$100.48; below zero, so a $25.00 fee: −$100.48 − $25.00 = −$125.48
   4. −$125.48 − $86.65 = −$212.13; below zero, so a $25.00 fee: −$212.13 − $25.00 = −$237.13
   5. Fees charged: 3 × $25.00 = $75.00

4. A check register starts at $335.45. Record these in order: deposit $351.87; debit $167.11; deposit $337.41; debit $256.70; debit $321.88; deposit $253.41. What is the ending balance?
   $532.45
   1. $335.45 + $351.87 = $687.32
   2. $687.32 − $167.11 = $520.21
   3. $520.21 + $337.41 = $857.62
   4. $857.62 − $256.70 = $600.92
   5. $600.92 − $321.88 = $279.04
   6. $279.04 + $253.41 = $532.45

5. A check register starts at $1,171.42. Record these in order: deposit $342.50; deposit $382.95; debit $368.38; deposit $361.46; deposit $352.93; deposit $171.55. What is the ending balance?
   $2,414.43
   1. $1,171.42 + $342.50 = $1,513.92
   2. $1,513.92 + $382.95 = $1,896.87
   3. $1,896.87 − $368.38 = $1,528.49
   4. $1,528.49 + $361.46 = $1,889.95
   5. $1,889.95 + $352.93 = $2,242.88
   6. $2,242.88 + $171.55 = $2,414.43

6. Your bank statement shows a balance of $452.60. You made deposits of $501.61 and $246.71 that the statement does not show yet, and checks or payments of $11.00, $102.43, $280.18 have not cleared. What should your register balance be?
   $807.31
   1. Add deposits in transit: $452.60 + $748.32 = $1,200.92
   2. Subtract outstanding items: $11.00 + $102.43 + $280.18 = $393.61
   3. Adjusted balance: $1,200.92 − $393.61 = $807.31

7. Your checking account has $88.39. You signed up for overdraft coverage, and the bank charges $25.00 each time a purchase takes the balance below zero (or deeper below zero). You make debit-card purchases of $52.84, $71.82, $31.16, $32.80, in that order. What is the final balance?
   −$175.23
   1. $88.39 − $52.84 = $35.55
   2. $35.55 − $71.82 = −$36.27; below zero, so a $25.00 fee: −$36.27 − $25.00 = −$61.27
   3. −$61.27 − $31.16 = −$92.43; below zero, so a $25.00 fee: −$92.43 − $25.00 = −$117.43
   4. −$117.43 − $32.80 = −$150.23; below zero, so a $25.00 fee: −$150.23 − $25.00 = −$175.23
   5. Fees charged: 3 × $25.00 = $75.00

8. A check register starts at $463.27. Record these in order: deposit $181.71; deposit $51.74; deposit $105.76; debit $146.47; debit $302.43; debit $327.79. What is the ending balance?
   $25.79
   1. $463.27 + $181.71 = $644.98
   2. $644.98 + $51.74 = $696.72
   3. $696.72 + $105.76 = $802.48
   4. $802.48 − $146.47 = $656.01
   5. $656.01 − $302.43 = $353.58
   6. $353.58 − $327.79 = $25.79

Unit 5 Test Key

Name _____ Date _____

Banking · Answers with steps

1. A loan of $21,500 charges 6.2% simple interest a year for 2 years. How much interest is owed in all?
   $2,666.00
   1. I = P × r × t
   2. I = $21,500 × 0.062 × 2 = $2,666.00

2. $11,750 is deposited at 8% interest compounded once a year. Nothing is added or withdrawn. What is the balance after 10 years?
   $25,367.37
   1. A = P(1 + r/n)^(nt) with P = $11,750, r = 0.08, n = 1, t = 10
   2. Rate per period: 0.08 ÷ 1 = 0.080000
   3. Number of periods: 1 × 10 = 10
   4. A = $11,750 × 1.080000^10 = $25,367.37

3. An account's stated annual rate is 5.5%, compounded monthly. What is the annual percentage yield (APY), the rate actually earned in a year? Round to two decimals.
   5.64%
   1. APY = (1 + r/n)^n − 1 with r = 0.055, n = 12
   2. (1 + 0.0046)^12 = 1.056408
   3. APY = 1.056408 − 1 = 0.056408, or 5.64%

4. You deposit $150.00 at the end of every month into an account earning 4% a year, compounded monthly. What is the balance after 30 years?
   $104,107.41
   1. Future value of monthly deposits: FV = PMT × ((1 + i)^n − 1) ÷ i
   2. i = 0.04 ÷ 12 = 0.003333; n = 12 × 30 = 360
   3. FV = $150.00 × (1.003333^360 − 1) ÷ 0.003333 = $104,107.41
   4. You put in $54,000; interest added $50,107.41.

5. A loan of $14,500 charges 6.2% simple interest a year for 3 years. How much interest is owed in all?
   $2,697.00
   1. I = P × r × t
   2. I = $14,500 × 0.062 × 3 = $2,697.00

6. $8,250.00 is deposited at 3% interest compounded quarterly. Nothing is added or withdrawn. What is the balance after 25 years?
   $17,416.44
   1. A = P(1 + r/n)^(nt) with P = $8,250.00, r = 0.03, n = 4, t = 25
   2. Rate per period: 0.03 ÷ 4 = 0.007500
   3. Number of periods: 4 × 25 = 100
   4. A = $8,250.00 × 1.007500^100 = $17,416.44

7. An account's stated annual rate is 4.8%, compounded monthly. What is the annual percentage yield (APY), the rate actually earned in a year? Round to two decimals.
   4.91%
   1. APY = (1 + r/n)^n − 1 with r = 0.048, n = 12
   2. (1 + 0.0040)^12 = 1.049070
   3. APY = 1.049070 − 1 = 0.049070, or 4.91%

8. You deposit $300.00 at the end of every month into an account earning 4% a year, compounded monthly. What is the balance after 30 years?
   $208,214.82
   1. Future value of monthly deposits: FV = PMT × ((1 + i)^n − 1) ÷ i
   2. i = 0.04 ÷ 12 = 0.003333; n = 12 × 30 = 360
   3. FV = $300.00 × (1.003333^360 − 1) ÷ 0.003333 = $208,214.82
   4. You put in $108,000; interest added $100,214.82.

Unit 6 Test Key

Name _____ Date _____

Banking · Answers with steps

1. A loan applicant earns $10,000 a month before taxes. Monthly debt payments are $1,450.00, $250.00, $550.00. What is the debt-to-income (DTI) ratio? Round to one decimal.
   22.5%
   1. Monthly debt: 1450 + 250 + 550 = $2,250.00
   2. DTI = $2,250.00 ÷ $10,000 = 22.5%

2. You have credit cards with limits of $9,500.00, $4,500.00, $3,000.00 and balances of $1,900.00, $3,375.00, $2,250.00. What is your overall credit utilization? Round to one decimal.
   44.3%
   1. Total balances: 1900 + 3375 + 2250 = $7,525.00
   2. Total limits: 9500 + 4500 + 3000 = $17,000
   3. Utilization = $7,525.00 ÷ $17,000 = 44.3%

3. A credit card has an APR of 22.49%. About how much interest is charged for one month on an unpaid balance of $879.47? (Use APR ÷ 12 as the monthly rate.)
   $16.48
   1. Monthly rate: 22.49% ÷ 12 = 1.8742%
   2. Interest: $879.47 × 0.2249 ÷ 12 = $16.48

4. You have credit cards with limits of $5,000.00, $12,500, $14,000 and balances of $1,000.00, $6,250.00, $7,000.00. What is your overall credit utilization? Round to one decimal.
   45.2%
   1. Total balances: 1000 + 6250 + 7000 = $14,250
   2. Total limits: 5000 + 12500 + 14000 = $31,500
   3. Utilization = $14,250 ÷ $31,500 = 45.2%

5. A loan applicant earns $9,250.00 a month before taxes. Monthly debt payments are $475.00, $1,450.00, $50.00. What is the debt-to-income (DTI) ratio? Round to one decimal.
   21.4%
   1. Monthly debt: 475 + 1450 + 50 = $1,975.00
   2. DTI = $1,975.00 ÷ $9,250.00 = 21.4%

6. You have credit cards with limits of $5,000.00, $13,500, $12,000 and balances of $3,750.00, $2,700.00, $9,000.00. What is your overall credit utilization? Round to one decimal.
   50.7%
   1. Total balances: 3750 + 2700 + 9000 = $15,450
   2. Total limits: 5000 + 13500 + 12000 = $30,500
   3. Utilization = $15,450 ÷ $30,500 = 50.7%

7. A credit card has an APR of 19.99%. About how much interest is charged for one month on an unpaid balance of $4,126.75? (Use APR ÷ 12 as the monthly rate.)
   $68.74
   1. Monthly rate: 19.99% ÷ 12 = 1.6658%
   2. Interest: $4,126.75 × 0.1999 ÷ 12 = $68.74

8. You have credit cards with limits of $10,500, $13,500, $2,500.00 and balances of $5,250.00, $675.00, $1,875.00. What is your overall credit utilization? Round to one decimal.
   29.4%
   1. Total balances: 5250 + 675 + 1875 = $7,800.00
   2. Total limits: 10500 + 13500 + 2500 = $26,500
   3. Utilization = $7,800.00 ÷ $26,500 = 29.4%

Unit 7 Test Key

Name _____ Date _____

Banking · Answers with steps

1. Find the monthly payment on a 3-year car loan of $18,500 at 7.9% APR.
   $578.87
   1. M = P·i ÷ (1 − (1 + i)^−n), with i = 0.079 ÷ 12 = 0.006583 and n = 36
   2. (1 + i)^−n = 0.789604
   3. M = $18,500 × 0.006583 ÷ 0.210396 = $578.87

2. The first monthly payment on a $305,000 loan at 6.5% APR is $2,656.88. How much of that first payment goes to principal (paying down the loan)?
   $1,004.80
   1. Interest for month 1: $305,000 × 0.065 ÷ 12 = $1,652.08
   2. Principal: $2,656.88 − $1,652.08 = $1,004.80
   3. New balance: $305,000 − $1,004.80 = $303,995.20

3. A family buys a home for $835,000 with a 20% down payment. What is the loan amount? (Its loan-to-value ratio is 80%; most conventional loans above 80% require private mortgage insurance.)
   $668,000.00
   1. Down payment: 20% × $835,000 = $167,000
   2. Loan: $835,000 − $167,000 = $668,000

4. Find the monthly payment on a 5-year car loan of $36,000 at 4.9% APR.
   $677.72
   1. M = P·i ÷ (1 − (1 + i)^−n), with i = 0.049 ÷ 12 = 0.004083 and n = 60
   2. (1 + i)^−n = 0.783095
   3. M = $36,000 × 0.004083 ÷ 0.216905 = $677.72

5. Find the monthly payment on a 30-year fixed-rate mortgage of $430,000 at 5.5% APR.
   $2,441.49
   1. M = P·i ÷ (1 − (1 + i)^−n), with i = 0.055 ÷ 12 = 0.004583 and n = 360
   2. (1 + i)^−n = 0.192775
   3. M = $430,000 × 0.004583 ÷ 0.807225 = $2,441.49

6. The first monthly payment on a $375,000 loan at 7.0% APR is $3,370.61. How much of that first payment goes to principal (paying down the loan)?
   $1,183.11
   1. Interest for month 1: $375,000 × 0.07 ÷ 12 = $2,187.50
   2. Principal: $3,370.61 − $2,187.50 = $1,183.11
   3. New balance: $375,000 − $1,183.11 = $373,816.89

7. A family buys a home for $355,000 with a 3.5% down payment. What is the loan amount? (Its loan-to-value ratio is 96.5%; most conventional loans above 80% require private mortgage insurance.)
   $342,575.00
   1. Down payment: 3.5% × $355,000 = $12,425
   2. Loan: $355,000 − $12,425 = $342,575

8. Find the monthly payment on a 15-year fixed-rate mortgage of $535,000 at 7.0% APR.
   $4,808.73
   1. M = P·i ÷ (1 − (1 + i)^−n), with i = 0.07 ÷ 12 = 0.005833 and n = 180
   2. (1 + i)^−n = 0.351007
   3. M = $535,000 × 0.005833 ÷ 0.648993 = $4,808.73

Unit 8 Test Key

Name _____ Date _____

Banking · Answers with steps

1. A small business has current assets (cash, receivables, inventory) of $258,000 and current liabilities (bills and short-term debt due within a year) of $355,000. What is its working capital?
   −$97,000.00
   1. Working capital = current assets − current liabilities
   2. $258,000 − $355,000 = −$97,000
   3. Current ratio: $258,000 ÷ $355,000 = 0.73

2. A bakery borrows $50,000 to buy ovens, on a 5-year term loan at 10.5% APR with monthly payments. What is the monthly payment?
   $1,074.70
   1. M = P·i ÷ (1 − (1 + i)^−n), i = 0.105 ÷ 12 = 0.008750, n = 60
   2. M = $50,000 × 0.008750 ÷ 0.407092 = $1,074.70

3. A business draws $24,000 on its line of credit at 12.0% APR, charged daily (APR ÷ 365 per day). It repays the full draw after 30 days. How much interest does it owe?
   $236.71
   1. Daily rate: 0.12 ÷ 365 = 0.0003288
   2. Interest: $24,000 × 0.0003288 × 30 = $236.71

4. A shop runs 1050 card sales in a month averaging $77.95 each. Its processor charges 2.9% of each sale plus $0.15 per transaction. What are the month's processing fees?
   $2,531.08
   1. Card sales: 1050 × $77.95 = $81,847.50
   2. Percent fee: 2.9% × $81,847.50 = $2,373.58
   3. Per-transaction fees: 1050 × $0.15 = $157.50
   4. Total fees: $2,373.58 + $157.50 = $2,531.08

5. A small business has current assets (cash, receivables, inventory) of $885,000 and current liabilities (bills and short-term debt due within a year) of $376,000. What is its working capital?
   $509,000.00
   1. Working capital = current assets − current liabilities
   2. $885,000 − $376,000 = $509,000
   3. Current ratio: $885,000 ÷ $376,000 = 2.35

6. A bakery borrows $90,000 to buy ovens, on a 7-year term loan at 10.5% APR with monthly payments. What is the monthly payment?
   $1,517.46
   1. M = P·i ÷ (1 − (1 + i)^−n), i = 0.105 ÷ 12 = 0.008750, n = 84
   2. M = $90,000 × 0.008750 ÷ 0.518959 = $1,517.46

7. A business draws $71,000 on its line of credit at 12.0% APR, charged daily (APR ÷ 365 per day). It repays the full draw after 17 days. How much interest does it owe?
   $396.82
   1. Daily rate: 0.12 ÷ 365 = 0.0003288
   2. Interest: $71,000 × 0.0003288 × 17 = $396.82

8. A shop runs 2600 card sales in a month averaging $81.65 each. Its processor charges 2.9% of each sale plus $0.05 per transaction. What are the month's processing fees?
   $6,286.41
   1. Card sales: 2600 × $81.65 = $212,290
   2. Percent fee: 2.9% × $212,290 = $6,156.41
   3. Per-transaction fees: 2600 × $0.05 = $130.00
   4. Total fees: $6,156.41 + $130.00 = $6,286.41

Unit 9 Test Key

Name _____ Date _____

Banking · Answers with steps

1. Under the federal Electronic Fund Transfer Act (Regulation E), your liability for unauthorized debit-card charges after a card is lost or stolen depends on how fast you report it. Someone used your stolen debit card for $450.00. You learned of the theft the day it happened and reported it 45 business days later, well within 60 days of your statement. All the charges were made after the first two business days, before you reported. What is the most you can be held responsible for?
   $450.00
   1. You reported after 2 business days but within 60 days of the statement, so the limit is $500.
   2. Your maximum liability is the smaller of the charges and the limit: min($450.00, $500.00) = $450.00
   3. Report at once, and know that a credit card caps your liability at $50 under federal law (many issuers charge $0).

2. A stranger who “overpaid” for something you sold online sends a check for $3,650.00 and asks you to send back $3,050.00 by gift cards. The bank makes the funds available, you send the money, and a week later the check is returned as counterfeit. The bank takes back the $3,650.00 and charges a $25.00 returned-item fee. How much have you lost?
   $3,075.00
   1. The $3,650.00 deposit is reversed, so it was never your money.
   2. You still sent $3,050.00 of your own money, and you pay the $25.00 fee.
   3. Loss: $3,050.00 + $25.00 = $3,075.00

3. Under the federal Electronic Fund Transfer Act (Regulation E), your liability for unauthorized debit-card charges after a card is lost or stolen depends on how fast you report it. Someone used your stolen debit card for $220.00. You learned of the theft the day it happened and reported it 20 business days later, well within 60 days of your statement. All the charges were made after the first two business days, before you reported. What is the most you can be held responsible for?
   $220.00
   1. You reported after 2 business days but within 60 days of the statement, so the limit is $500.
   2. Your maximum liability is the smaller of the charges and the limit: min($220.00, $500.00) = $220.00
   3. Report at once, and know that a credit card caps your liability at $50 under federal law (many issuers charge $0).

4. Run your own bank for a year. You take $93,000,000 in deposits at 2.5%, lend $74,400,000 at 7.0%, and 2% of the loans default (are never repaid). Operating costs are $1,860,000. What is the bank’s profit before taxes (negative means a loss)?
   −$465,000.00
   1. Interest earned: $74,400,000 × 7.0% = $5,208,000
   2. Interest paid: $93,000,000 × 2.5% = $2,325,000
   3. Loan losses: $74,400,000 × 2% = $1,488,000
   4. Profit: $5,208,000 − $2,325,000 − $1,488,000 − $1,860,000 = −$465,000

5. Under the federal Electronic Fund Transfer Act (Regulation E), your liability for unauthorized debit-card charges after a card is lost or stolen depends on how fast you report it. Someone used your stolen debit card for $2,570.00. You learned of the theft the day it happened and reported it 2 business days later, well within 60 days of your statement. What is the most you can be held responsible for?
   $50.00
   1. You reported within 2 business days of learning the card was lost or stolen, so the limit is $50.
   2. Your maximum liability is the smaller of the charges and the limit: min($2,570.00, $50.00) = $50.00
   3. Report at once, and know that a credit card caps your liability at $50 under federal law (many issuers charge $0).

6. A stranger who “overpaid” for something you sold online sends a check for $1,550.00 and asks you to send back $1,150.00 by gift cards. The bank makes the funds available, you send the money, and a week later the check is returned as counterfeit. The bank takes back the $1,550.00 and charges a $10.00 returned-item fee. How much have you lost?
   $1,160.00
   1. The $1,550.00 deposit is reversed, so it was never your money.
   2. You still sent $1,150.00 of your own money, and you pay the $10.00 fee.
   3. Loss: $1,150.00 + $10.00 = $1,160.00

7. Under the federal Electronic Fund Transfer Act (Regulation E), your liability for unauthorized debit-card charges after a card is lost or stolen depends on how fast you report it. Someone used your stolen debit card for $1,840.00. You learned of the theft the day it happened and reported it 2 business days later, well within 60 days of your statement. What is the most you can be held responsible for?
   $50.00
   1. You reported within 2 business days of learning the card was lost or stolen, so the limit is $50.
   2. Your maximum liability is the smaller of the charges and the limit: min($1,840.00, $50.00) = $50.00
   3. Report at once, and know that a credit card caps your liability at $50 under federal law (many issuers charge $0).

8. Run your own bank for a year. You take $91,000,000 in deposits at 1.5%, lend $72,800,000 at 6.5%, and 3% of the loans default (are never repaid). Operating costs are $2,275,000. What is the bank’s profit before taxes (negative means a loss)?
   −$1,092,000.00
   1. Interest earned: $72,800,000 × 6.5% = $4,732,000
   2. Interest paid: $91,000,000 × 1.5% = $1,365,000
   3. Loan losses: $72,800,000 × 3% = $2,184,000
   4. Profit: $4,732,000 − $1,365,000 − $2,184,000 − $2,275,000 = −$1,092,000

Midterm Exam Key

Name _____ Date _____

Banking · Answers with steps

1. A saver keeps $4,250.00 in a savings account that pays 1.25% simple interest a year. How much interest does she earn in 3 years?
   $159.38
   1. Simple interest: I = P × r × t
   2. I = $4,250.00 × 0.0125 × 3 = $159.38

2. A saver keeps $14,750 in a savings account that pays 4.4% simple interest a year. How much interest does she earn in 3 years?
   $1,947.00
   1. Simple interest: I = P × r × t
   2. I = $14,750 × 0.044 × 3 = $1,947.00

3. A small bank holds $4,800,000 in deposits and pays savers 1.0% a year. It lends $4,320,000 to borrowers at 8.0% a year. For one year, what is the bank's net interest income (interest earned minus interest paid)?
   $297,600.00
   1. Interest earned on loans: $4,320,000 × 8.0% = $345,600
   2. Interest paid to savers: $4,800,000 × 1.0% = $48,000
   3. Net interest income: $345,600 − $48,000 = $297,600

4. A small bank holds $5,900,000 in deposits and pays savers 0.5% a year. It lends $3,540,000 to borrowers at 5.5% a year. For one year, what is the bank's net interest income (interest earned minus interest paid)?
   $165,200.00
   1. Interest earned on loans: $3,540,000 × 5.5% = $194,700
   2. Interest paid to savers: $5,900,000 × 0.5% = $29,500
   3. Net interest income: $194,700 − $29,500 = $165,200

5. A bank's balance sheet shows cash and reserves $9,000,000, securities $27,000,000 and loans $314,000,000. It owes depositors $297,000,000 and has other borrowings of $15,000,000. What is the owners' equity (capital)?
   $38,000,000.00
   1. Total assets: $9,000,000 + $27,000,000 + $314,000,000 = $350,000,000
   2. Total liabilities: $297,000,000 + $15,000,000 = $312,000,000
   3. Equity = assets − liabilities = $350,000,000 − $312,000,000 = $38,000,000

6. A bank earned $4,620,000 of interest and paid $1,540,000 of interest last year on $77,000,000 of earning assets (loans and securities). What is its net interest margin (NIM), as a percent?
   4.00%
   1. Net interest income: $4,620,000 − $1,540,000 = $3,080,000
   2. NIM = net interest income ÷ earning assets = $3,080,000 ÷ $77,000,000 = 0.0400
   3. As a percent: 4.00%

7. A bank has total assets of $740,000,000 and equity (capital) of $93,000,000. What is its equity-to-assets (leverage) ratio, as a percent?
   12.57%
   1. Ratio = equity ÷ assets = $93,000,000 ÷ $740,000,000 = 0.1257
   2. As a percent: 12.57%
   3. So about 8.0 dollars of assets rest on each dollar of the owners' money.

8. A bank with $680,000,000 of assets earned a profit of $9,280,000 after taxes. What is its return on assets (ROA), as a percent?
   1.36%
   1. ROA = profit ÷ assets = $9,280,000 ÷ $680,000,000 = 0.0136
   2. As a percent: 1.36%

9. Suppose a rule required banks to hold 10% of deposits as reserves. (The U.S. set this requirement to 0% in March 2020; many countries and textbooks still use one.) A bank has $13,000,000 in deposits and $1,950,000 in reserves. How much are its excess reserves?
   $650,000.00
   1. Required reserves: 10% × $13,000,000 = $1,300,000
   2. Excess reserves: $1,950,000 − $1,300,000 = $650,000

10. In the simple textbook model, every bank lends out everything except a required reserve of 20%, and every loan is redeposited. If $135,000 of new reserves enters the system, what is the most that total deposits can grow?
    $675,000.00
    1. Simple money multiplier = 1 ÷ reserve ratio = 1 ÷ 0.2 = 5
    2. Maximum new deposits = $135,000 × 5 = $675,000
    3. Real banking falls short of this maximum: people hold cash, banks keep extra reserves, and lending depends on willing, creditworthy borrowers.

11. Pat has single-owner accounts (no joint owners or beneficiaries) of $40,000 and $35,000 and $30,000 at Bank A and $375,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat's money is NOT insured?
    $125,000.00
    1. Bank A total (same owner, same category, so the accounts are added): $40,000 + $35,000 + $30,000 = $105,000
    2. Bank A: $105,000 is at or under $250,000, so it is fully insured ($0.00 uninsured).
    3. Bank B uninsured: $375,000 − $250,000 = $125,000
    4. Total uninsured: $0.00 + $125,000 = $125,000

12. Pat has single-owner accounts (no joint owners or beneficiaries) of $55,000 and $105,000 and $235,000 at Bank A and $50,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat's money is NOT insured?
    $145,000.00
    1. Bank A total (same owner, same category, so the accounts are added): $55,000 + $105,000 + $235,000 = $395,000
    2. Bank A uninsured: $395,000 − $250,000 = $145,000
    3. Bank B: $50,000 is at or under $250,000, so it is fully insured ($0.00 uninsured).
    4. Total uninsured: $145,000 + $0.00 = $145,000

13. A check register starts at $1,406.82. Record these in order: debit $115.22; deposit $399.29; deposit $33.85; deposit $220.87; deposit $391.29; debit $109.53. What is the ending balance?
    $2,227.37
    1. $1,406.82 − $115.22 = $1,291.60
    2. $1,291.60 + $399.29 = $1,690.89
    3. $1,690.89 + $33.85 = $1,724.74
    4. $1,724.74 + $220.87 = $1,945.61
    5. $1,945.61 + $391.29 = $2,336.90
    6. $2,336.90 − $109.53 = $2,227.37

14. Your bank statement shows a balance of $2,900.64. You made deposits of $324.92 and $384.04 that the statement does not show yet, and checks or payments of $44.26, $164.68, $167.82 have not cleared. What should your register balance be?
    $3,232.84
    1. Add deposits in transit: $2,900.64 + $708.96 = $3,609.60
    2. Subtract outstanding items: $44.26 + $164.68 + $167.82 = $376.76
    3. Adjusted balance: $3,609.60 − $376.76 = $3,232.84

15. Your checking account has $109.26. You signed up for overdraft coverage, and the bank charges $25.00 each time a purchase takes the balance below zero (or deeper below zero). You make debit-card purchases of $60.47, $60.54, $63.23, $36.00, in that order. What is the final balance?
    −$185.98
    1. $109.26 − $60.47 = $48.79
    2. $48.79 − $60.54 = −$11.75; below zero, so a $25.00 fee: −$11.75 − $25.00 = −$36.75
    3. −$36.75 − $63.23 = −$99.98; below zero, so a $25.00 fee: −$99.98 − $25.00 = −$124.98
    4. −$124.98 − $36.00 = −$160.98; below zero, so a $25.00 fee: −$160.98 − $25.00 = −$185.98
    5. Fees charged: 3 × $25.00 = $75.00

16. A check register starts at $384.33. Record these in order: debit $341.55; debit $219.65; deposit $32.95; debit $308.66; deposit $213.02; deposit $392.56. What is the ending balance?
    $153.00
    1. $384.33 − $341.55 = $42.78
    2. $42.78 − $219.65 = −$176.87
    3. −$176.87 + $32.95 = −$143.92
    4. −$143.92 − $308.66 = −$452.58
    5. −$452.58 + $213.02 = −$239.56
    6. −$239.56 + $392.56 = $153.00

Final Exam Key

Name _____ Date _____

Banking · Answers with steps

1. A saver keeps $14,250 in a savings account that pays 4.4% simple interest a year. How much interest does she earn in 3 years?
   $1,881.00
   1. Simple interest: I = P × r × t
   2. I = $14,250 × 0.044 × 3 = $1,881.00

2. A saver keeps $5,750.00 in a savings account that pays 0.5% simple interest a year. How much interest does she earn in 3 years?
   $86.25
   1. Simple interest: I = P × r × t
   2. I = $5,750.00 × 0.005 × 3 = $86.25

3. A small bank holds $8,300,000 in deposits and pays savers 2.5% a year. It lends $5,810,000 to borrowers at 8.0% a year. For one year, what is the bank's net interest income (interest earned minus interest paid)?
   $257,300.00
   1. Interest earned on loans: $5,810,000 × 8.0% = $464,800
   2. Interest paid to savers: $8,300,000 × 2.5% = $207,500
   3. Net interest income: $464,800 − $207,500 = $257,300

4. A small bank holds $8,700,000 in deposits and pays savers 0.5% a year. It lends $6,960,000 to borrowers at 6.5% a year. For one year, what is the bank's net interest income (interest earned minus interest paid)?
   $408,900.00
   1. Interest earned on loans: $6,960,000 × 6.5% = $452,400
   2. Interest paid to savers: $8,700,000 × 0.5% = $43,500
   3. Net interest income: $452,400 − $43,500 = $408,900

5. A bank's balance sheet shows cash and reserves $5,000,000, securities $81,000,000 and loans $234,000,000. It owes depositors $256,000,000 and has other borrowings of $19,000,000. What is the owners' equity (capital)?
   $45,000,000.00
   1. Total assets: $5,000,000 + $81,000,000 + $234,000,000 = $320,000,000
   2. Total liabilities: $256,000,000 + $19,000,000 = $275,000,000
   3. Equity = assets − liabilities = $320,000,000 − $275,000,000 = $45,000,000

6. A bank earned $13,580,000.00 of interest and paid $4,850,000 of interest last year on $194,000,000 of earning assets (loans and securities). What is its net interest margin (NIM), as a percent?
   4.50%
   1. Net interest income: $13,580,000.00 − $4,850,000 = $8,730,000.00
   2. NIM = net interest income ÷ earning assets = $8,730,000.00 ÷ $194,000,000 = 0.0450
   3. As a percent: 4.50%

7. A bank has total assets of $313,000,000 and equity (capital) of $41,000,000. What is its equity-to-assets (leverage) ratio, as a percent?
   13.10%
   1. Ratio = equity ÷ assets = $41,000,000 ÷ $313,000,000 = 0.1310
   2. As a percent: 13.10%
   3. So about 7.6 dollars of assets rest on each dollar of the owners' money.

8. A bank with $715,000,000 of assets earned a profit of $11,370,000 after taxes. What is its return on assets (ROA), as a percent?
   1.59%
   1. ROA = profit ÷ assets = $11,370,000 ÷ $715,000,000 = 0.0159
   2. As a percent: 1.59%

9. Suppose a rule required banks to hold 10% of deposits as reserves. (The U.S. set this requirement to 0% in March 2020; many countries and textbooks still use one.) A bank has $47,500,000 in deposits and $8,550,000 in reserves. How much are its excess reserves?
   $3,800,000.00
   1. Required reserves: 10% × $47,500,000 = $4,750,000
   2. Excess reserves: $8,550,000 − $4,750,000 = $3,800,000

10. In the simple textbook model, every bank lends out everything except a required reserve of 8%, and every loan is redeposited. If $390,000 of new reserves enters the system, what is the most that total deposits can grow?
    $4,875,000.00
    1. Simple money multiplier = 1 ÷ reserve ratio = 1 ÷ 0.08 = 12.5
    2. Maximum new deposits = $390,000 × 12.5 = $4,875,000
    3. Real banking falls short of this maximum: people hold cash, banks keep extra reserves, and lending depends on willing, creditworthy borrowers.

11. Pat has single-owner accounts (no joint owners or beneficiaries) of $200,000 and $65,000 and $40,000 at Bank A and $55,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat's money is NOT insured?
    $55,000.00
    1. Bank A total (same owner, same category, so the accounts are added): $200,000 + $65,000 + $40,000 = $305,000
    2. Bank A uninsured: $305,000 − $250,000 = $55,000
    3. Bank B: $55,000 is at or under $250,000, so it is fully insured ($0.00 uninsured).
    4. Total uninsured: $55,000 + $0.00 = $55,000

12. Pat has single-owner accounts (no joint owners or beneficiaries) of $250,000 and $185,000 and $105,000 at Bank A and $230,000 at Bank B. Both banks are FDIC-insured. The standard limit is $250,000 per depositor, per insured bank, for each ownership category. How much of Pat's money is NOT insured?
    $290,000.00
    1. Bank A total (same owner, same category, so the accounts are added): $250,000 + $185,000 + $105,000 = $540,000
    2. Bank A uninsured: $540,000 − $250,000 = $290,000
    3. Bank B: $230,000 is at or under $250,000, so it is fully insured ($0.00 uninsured).
    4. Total uninsured: $290,000 + $0.00 = $290,000

13. A check register starts at $1,459.27. Record these in order: deposit $386.63; debit $88.43; deposit $90.33; debit $267.13; debit $197.72; debit $25.35. What is the ending balance?
    $1,357.60
    1. $1,459.27 + $386.63 = $1,845.90
    2. $1,845.90 − $88.43 = $1,757.47
    3. $1,757.47 + $90.33 = $1,847.80
    4. $1,847.80 − $267.13 = $1,580.67
    5. $1,580.67 − $197.72 = $1,382.95
    6. $1,382.95 − $25.35 = $1,357.60

14. Your bank statement shows a balance of $902.46. You made deposits of $233.16 and $21.87 that the statement does not show yet, and checks or payments of $10.40, $158.51, $280.56 have not cleared. What should your register balance be?
    $708.02
    1. Add deposits in transit: $902.46 + $255.03 = $1,157.49
    2. Subtract outstanding items: $10.40 + $158.51 + $280.56 = $449.47
    3. Adjusted balance: $1,157.49 − $449.47 = $708.02

15. Your checking account has $137.26. You signed up for overdraft coverage, and the bank charges $35.00 each time a purchase takes the balance below zero (or deeper below zero). You make debit-card purchases of $85.94, $83.71, $47.79, $59.07, in that order. What is the final balance?
    −$244.25
    1. $137.26 − $85.94 = $51.32
    2. $51.32 − $83.71 = −$32.39; below zero, so a $35.00 fee: −$32.39 − $35.00 = −$67.39
    3. −$67.39 − $47.79 = −$115.18; below zero, so a $35.00 fee: −$115.18 − $35.00 = −$150.18
    4. −$150.18 − $59.07 = −$209.25; below zero, so a $35.00 fee: −$209.25 − $35.00 = −$244.25
    5. Fees charged: 3 × $35.00 = $105.00

16. A check register starts at $1,354.46. Record these in order: deposit $25.21; deposit $15.64; deposit $211.46; deposit $174.31; debit $142.40; deposit $385.51. What is the ending balance?
    $2,024.19
    1. $1,354.46 + $25.21 = $1,379.67
    2. $1,379.67 + $15.64 = $1,395.31
    3. $1,395.31 + $211.46 = $1,606.77
    4. $1,606.77 + $174.31 = $1,781.08
    5. $1,781.08 − $142.40 = $1,638.68
    6. $1,638.68 + $385.51 = $2,024.19

17. A loan of $25,000 charges 6.2% simple interest a year for 3 years. How much interest is owed in all?
    $4,650.00
    1. I = P × r × t
    2. I = $25,000 × 0.062 × 3 = $4,650.00

18. $19,750 is deposited at 6% interest compounded quarterly. Nothing is added or withdrawn. What is the balance after 40 years?
    $213,862.12
    1. A = P(1 + r/n)^(nt) with P = $19,750, r = 0.06, n = 4, t = 40
    2. Rate per period: 0.06 ÷ 4 = 0.015000
    3. Number of periods: 4 × 40 = 160
    4. A = $19,750 × 1.015000^160 = $213,862.12

19. An account's stated annual rate is 5.5%, compounded monthly. What is the annual percentage yield (APY), the rate actually earned in a year? Round to two decimals.
    5.64%
    1. APY = (1 + r/n)^n − 1 with r = 0.055, n = 12
    2. (1 + 0.0046)^12 = 1.056408
    3. APY = 1.056408 − 1 = 0.056408, or 5.64%

20. You deposit $300.00 at the end of every month into an account earning 4% a year, compounded monthly. What is the balance after 10 years?
    $44,174.94
    1. Future value of monthly deposits: FV = PMT × ((1 + i)^n − 1) ÷ i
    2. i = 0.04 ÷ 12 = 0.003333; n = 12 × 10 = 120
    3. FV = $300.00 × (1.003333^120 − 1) ÷ 0.003333 = $44,174.94
    4. You put in $36,000; interest added $8,174.94.

21. A loan applicant earns $7,500.00 a month before taxes. Monthly debt payments are $1,700.00, $1,150.00, $1,375.00. What is the debt-to-income (DTI) ratio? Round to one decimal.
    56.3%
    1. Monthly debt: 1700 + 1150 + 1375 = $4,225.00
    2. DTI = $4,225.00 ÷ $7,500.00 = 56.3%

22. You have credit cards with limits of $8,500.00, $2,000.00, $13,500 and balances of $2,550.00, $200.00, $4,050.00. What is your overall credit utilization? Round to one decimal.
    28.3%
    1. Total balances: 2550 + 200 + 4050 = $6,800.00
    2. Total limits: 8500 + 2000 + 13500 = $24,000
    3. Utilization = $6,800.00 ÷ $24,000 = 28.3%

23. A credit card has an APR of 22.49%. About how much interest is charged for one month on an unpaid balance of $4,454.11? (Use APR ÷ 12 as the monthly rate.)
    $83.48
    1. Monthly rate: 22.49% ÷ 12 = 1.8742%
    2. Interest: $4,454.11 × 0.2249 ÷ 12 = $83.48

24. You have credit cards with limits of $12,000, $10,500, $1,000.00 and balances of $6,000.00, $2,100.00, $200.00. What is your overall credit utilization? Round to one decimal.
    35.3%
    1. Total balances: 6000 + 2100 + 200 = $8,300.00
    2. Total limits: 12000 + 10500 + 1000 = $23,500
    3. Utilization = $8,300.00 ÷ $23,500 = 35.3%