

Financial foundations

A practical self-study workbook

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Ten exercises. Planning tables. Worked answers. No account required.

How to use this workbook

Read the corresponding lesson, work through the exercise, and then compare your reasoning with the answer key. Use fictional data or keep your completed copy private. Do not send account numbers, passwords, or private financial records to this site.

General US-focused education. No individualized financial, investment, tax, or legal advice. Investing can result in loss.

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01 / Cash flow: timing matters

A positive monthly budget can still contain a week when cash runs short.

Worked example

Illustration: You start week 1 with \$300. A \$1,200 bill is due before a \$1,500 paycheck arrives in week 2. The two-week total is positive, but week 1 has a \$900 timing gap. A plan must address the due date or available cash; a positive final total does not remove that gap.

Period	Starting cash	Income	Expenses	Ending cash
Week 1	\$300	\$0	\$1,200	-\$900
Week 2	-\$900	\$1,500	\$0	\$600

Your exercise

You start with \$500, receive \$800, and pay \$950 in week 1. In week 2, you receive \$0 and pay \$400. Calculate both ending balances and identify the first shortfall.

Step or assumption	Your working
1	
2	
3	
Result	

A mistake to avoid

Counting an expected paycheck as available cash before its deposit date.

Reflect

What assumption would change this result? How would you check it?

Lesson: <https://geloshholdingsllc.net/academy/lessons/m01-l01-cash-flow>

02 / Emergency reserves and liquidity

A reserve is money set aside for an unexpected expense; access is part of its purpose.

Worked example

Illustration: A person models \$1,800 of essential monthly spending and chooses to explore a three-month reserve scenario. The scenario target is \$5,400. With \$2,400 already saved, the gap is \$3,000. Saving \$250 monthly would close that gap in 12 months, assuming no withdrawals or interest. Three months is an example input, not a recommendation.

Input	Example
Essential spending	\$1,800/month
Scenario duration	3 months
Scenario target	\$5,400
Current reserve	\$2,400
Remaining gap	\$3,000

Your exercise

Model \$2,000 in essential spending for two months. Starting reserves are \$1,000 and monthly additions are \$300. How long does the \$3,000 gap take to close?

Step or assumption	Your working
1	
2	
3	
Result	

A mistake to avoid

Treating money committed to next month's rent as an emergency reserve as well.

Reflect

What assumption would change this result? How would you check it?

Lesson: <https://geloshholdingsllc.net/academy/lessons/m01-l02-emergency-reserves>

03 / Goals and time horizon

A goal needs an amount, a date, and a way to handle uncertainty.

Worked example

Illustration: Goal A is a \$2,400 payment due in six months. Goal B is a flexible project planned several years away. Both involve saving, but Goal A has a tighter deadline and less room to recover from a fall in value. With no starting balance or interest, Goal A requires \$400 per month.

Question	Goal A	Goal B
Amount	\$2,400	Still being estimated
Deadline	6 months	Several years
Flexibility	Low	Higher
Key uncertainty	Cash available on the date	Final cost and timing

Your exercise

A \$3,600 goal is due in nine months. You have \$900 set aside. Ignoring interest, how much remains and what equal monthly amount closes the gap?

Step or assumption	Your working
1	
2	
3	
Result	

A mistake to avoid

Using the same assumptions for every goal because all the money is in one account.

Reflect

What assumption would change this result? How would you check it?

Lesson: <https://geloshholdingsllc.net/academy/lessons/m01-l04-goals-horizon>

04 / Simple interest

Simple interest applies the rate to the original principal, without interest on prior interest.

Worked example

Original arithmetic example: \$1,000 at a hypothetical 5% annual simple rate for three years earns $\$1,000 \times 0.05 \times 3 = \150 . The ending amount is \$1,150. Each year adds \$50 because the calculation always uses the original \$1,000.

Year	Interest this year	Total balance
0	\$0	\$1,000
1	\$50	\$1,050
2	\$50	\$1,100
3	\$50	\$1,150

Your exercise

Calculate simple interest on \$2,000 at 6% annually for 18 months. Convert the time to years before multiplying.

Step or assumption	Your working
1	
2	
3	
Result	

A mistake to avoid

Typing 5 as a decimal rate instead of 0.05, or using 18 months as 18 years.

Reflect

What assumption would change this result? How would you check it?

Lesson: <https://geloshholdingsllc.net/academy/lessons/m02-l01-simple-interest>

05 / Compound interest

Compound interest adds earlier interest to the base that earns the next period's interest.

Worked example

Original arithmetic example: Begin with \$1,000 at 10% annually, compounded once per year. Year 1 adds \$100, reaching \$1,100. Year 2 adds \$110, reaching \$1,210. The extra \$10 compared with simple interest is interest earned on the first year's \$100.

Year	Opening amount	Interest	Ending amount
1	\$1,000	\$100	\$1,100
2	\$1,100	\$110	\$1,210

Your exercise

Start with \$2,000 at a hypothetical 5% annual rate for two years, compounded annually, with no contributions. Calculate each year separately.

Step or assumption	Your working
1	
2	
3	
Result	

A mistake to avoid

Reading a smooth illustrative growth line as a guarantee that market investments rise every year.

Reflect

What assumption would change this result? How would you check it?

Lesson: <https://geloshholdingsllc.net/academy/lessons/m02-l02-compound-interest>

06 / Inflation and purchasing power

A larger number of dollars does not always buy more goods and services.

Worked example

Original arithmetic example: An item costs \$100 today and rises 5% to \$105 in one year. A fixed \$100 can buy $100/105 = 95.24\%$ of the original quantity. Separately, a 7% nominal return with 3% inflation gives $1.07/1.03 - 1 =$ approximately 3.88% real return.

Measure	Illustration
Future nominal amount	\$100
One-year inflation assumption	5%
Today's purchasing power	\$95.24
Reduction in purchasing power	\$4.76

Your exercise

A future \$1,210 will be received in two years. At a constant 10% annual inflation assumption, what is its value in today's purchasing power?

Step or assumption	Your working
1	
2	
3	
Result	

A mistake to avoid

Comparing a future nominal amount to today's costs without adjusting either side.

Reflect

What assumption would change this result? How would you check it?

Lesson: <https://geloshholdingsllc.net/academy/lessons/m02-l04-nominal-vs-real>

07 / Diversification and concentration

Different labels do not necessarily mean different underlying risks.

Worked example

Original illustration: A \$10,000 example portfolio puts \$5,000 into company A and \$5,000 into company B. If A falls 40% while B is unchanged, the total falls \$2,000, or 20%. A portfolio wholly in A would lose 40%. If both companies fall 40%, splitting the money between them does not help in this scenario.

Scenario	Company A	Company B	Portfolio change
A falls; B unchanged	-40%	0%	-20%
Both fall together	-40%	-40%	-40%

Your exercise

An example portfolio is 25% in A and 75% in B. A loses 20% and B is unchanged. What is the portfolio change, ignoring fees and rebalancing?

Step or assumption	Your working
1	
2	
3	
Result	

A mistake to avoid

Assuming that adding another fund automatically removes concentration.

Reflect

What assumption would change this result? How would you check it?

Lesson: <https://geloshholdingsllc.net/academy/lessons/m12-l02-diversification>

08 / Fees and long-term growth

A recurring fee reduces both today's balance and the amount left to grow.

Worked example

Original arithmetic example: Start with \$10,000, assume a 5% gross annual return, and apply a 1% annual fee after growth. After one year, $\$10,000 \times 1.05 \times 0.99 = \$10,395$, compared with \$10,500 without that fee. After two years the fee scenario is \$10,805.60, versus \$11,025. The \$219.40 difference includes fees and the growth those deducted dollars no longer earn.

Year	Without fee	With 1% fee
0	\$10,000	\$10,000
1	\$10,500	\$10,395
2	\$11,025	\$10,805.60

Your exercise

Starting with \$1,000 and zero gross return, apply a 1% fee after each year for two years. What remains?

Step or assumption	Your working
1	
2	
3	
Result	

A mistake to avoid

Calling the difference between two future balances the exact amount of fees paid; it also includes foregone growth.

Reflect

What assumption would change this result? How would you check it?

Lesson: <https://geloshholdingsllc.net/academy/lessons/m13-l01-expense-ratios>

09 / Account security and monitoring

Prevention and prompt detection work together.

Worked example

Practice scenario: A notice says a new withdrawal destination was added. You did not make the change. Open the provider's known app or type its known address, review the activity, and contact the institution through a verified channel. Do not use a phone number from the unexpected notice to establish its legitimacy.

Control	What to check
Unique password	Not reused on another service
Multifactor authentication	Enabled through the provider
Alerts	Changes and transactions monitored
Recovery email	Secured and accessible
Review routine	Statements and access activity checked

Your exercise

Make a security checklist for a fictional account. Include one preventive control, one detection control, and one independently verified contact method. Do not record a real password.

Step or assumption	Your working
1	
2	
3	
Result	

A mistake to avoid

Setting up protections once and ignoring all future account alerts.

Reflect

What assumption would change this result? How would you check it?

Lesson: <https://geloshholdingsllc.net/academy/lessons/m15-l01-account-security>

10 / Phishing and impersonation

Verify the sender through a channel you already trust.

Worked example

Practice scenario: A text says, "Your brokerage is locked. Verify your login now." It links to an unfamiliar domain and creates urgency. Instead of using that link, open the brokerage app directly. If there is no matching notice, contact the broker through the app's verified support channel. The message itself should not supply the only evidence that it is legitimate.

Message cue	Verification step
Unexpected urgency	Pause and inspect
Login link	Open the known app independently
Request for a code	Do not disclose it to the sender
Payment instructions	Confirm through a verified contact

Your exercise

Write the first three actions you would take after an unexpected password-reset text. Use fictional details only.

Step or assumption	Your working
1	
2	
3	
Result	

A mistake to avoid

Replying to the suspicious sender to ask whether the message is genuine.

Reflect

What assumption would change this result? How would you check it?

Lesson: <https://geloshholdingsllc.net/academy/lessons/m15-l02-phishing-impersonation>

Worked answers

Compare the method as well as the result. These examples use fictional values.

1. Cash flow: timing matters

Week 1 ends at \$350. Week 2 ends at -\$50. The first shortfall occurs in week 2.

2. Emergency reserves and liquidity

10 months, with no interest, withdrawals, or changes in spending.

3. Goals and time horizon

\$2,700 remains. Nine equal monthly amounts of \$300 close the gap.

4. Simple interest

18 months = 1.5 years. Interest = $\$2,000 \times 0.06 \times 1.5 = \180 . Ending amount = \$2,180.

5. Compound interest

Year 1: \$2,100. Year 2: \$2,205. Total growth: \$205. Simple interest would have produced \$2,200.

6. Inflation and purchasing power

$\$1,210 / 1.10^2 = \$1,000$ in today's purchasing power.

7. Diversification and concentration

$0.25 \times -20\% + 0.75 \times 0\% = -5\%$.

8. Fees and long-term growth

$\$1,000 \times 0.99^2 = \980.10 . The total reduction is \$19.90.

9. Account security and monitoring

One valid answer: unique password with multifactor authentication; alerts for account changes; the contact number from the provider's known website.

10. Phishing and impersonation

A valid sequence: do not click the link; open the known account app independently; inspect activity and contact verified support if needed.

Source library

Official material supporting the course concepts. The worked numerical examples are original illustrations.

Creating a cash flow budget

Consumer Financial Protection Bureau

[Open official source](#)

An essential guide to building an emergency fund

Consumer Financial Protection Bureau

[Open official source](#)

Compound interest calculator

Investor.gov / SEC

[Open official source](#)

Purchasing power

Investor.gov / SEC

[Open official source](#)

Asset allocation and diversification

Investor.gov / SEC

[Open official source](#)

Beginners' guide to asset allocation and diversification

Investor.gov / SEC

[Open official source](#)

How fees and expenses affect your investment portfolio

Investor.gov / SEC

[Open official source](#)

Protecting your online investment accounts from fraud

Investor.gov / SEC

[Open official source](#)

Protect accounts from phishing, smishing, and vishing

Investor.gov / SEC

[Open official source](#)

What is risk?

Investor.gov / SEC

Open official source

Find full source links and calculation methods at geloshholdingsllc.net/academy/sources and [/academy/methodology](https://geloshholdingsllc.net/academy/methodology).