AP Business with Personal Finance — Case Study Bank

This file is a growing bank of AP-style case studies — **8 fully worked so far**, with more added in each update. The planned lineup builds toward 30 cases distributed across the five units:

- **Unit 1 (Businesses, Competition, New Ideas):** 6 cases (target)
- **Unit 2 (Marketing):** 6 cases (target)
- **Unit 3 (Personal and Business Finance):** 8 cases (target)
- **Unit 4 (Management and Strategy):** 5 cases (target)
- **Unit 5 (Personal Goals, Budgeting, Investing):** 5 cases (target)

Each written case includes: an original stimulus (a business or household scenario), a small data exhibit (table, budget, or financial statement), three or four stimulus-based multiple-choice questions, one short free-response question (FRQ) in an official AP FRQ type, and a complete answer key with per-question explanations and FRQ scoring notes. All scenarios are content-original; no scenario is taken from a competing textbook or from the College Board's named CED cases (those are mapped separately in `essential_cases.md`).

> **STATUS (THIS RELEASE).** The first batch of **8 fully written cases is now live** (Cases 1, 6, 7, 9, 13, 20, 24, and 30 below), spanning all five units. The remaining cases in the index are being populated in later releases. The template beneath the index shows what every case looks like; the print book also contains five unit-opening cases (one per unit) and 10–15 in-chapter mini-cases you can use today.

Index of cases (final lineup)

#	Title	Unit	Skills	Status
1	Stitch Pop-Up: should the founder quit her job?	1	1, 3, 4	✓ written
2	The two-store espresso bar	1	2, 3	scheduled

#	Title	Unit	Skills	Status
3	Flatbread Co-op vs. national chain	1	1, 2	scheduled
4	Refurb Kits: PESTEL on circular electronics	1	4	scheduled
5	The dropshipper and the FTC letter	1	1, 3	scheduled
6	The college side hustle: solo prop or LLC?	1	1, 2	✓ written
7	The salsa brand: who is really our customer?	2	1, 3	✓ written
8	Streaming churn and the $4 onboarding email	2	3	scheduled
9	The price test that surprised the founders	2	3, 4	✓ written
10	Local bookstore vs. Amazon: rebuilding a brand	2	1, 4	scheduled
11	TikTok Shop: a viability decision	2	4	scheduled
12	Cialdini in the wild: 5 ads, 5 principles	2	1, 2	scheduled
13	The income statement that doesn’t match cash	3	1, 3	✓ written
14	The 23-year-old’s $25,000 in student loans	3	3, 4	scheduled
15	Inventory write-down and the gross margin shock	3	3	scheduled
16	The contractor who can’t read a balance sheet	3	1, 3	scheduled

#	Title	Unit	Skills	Status
17	Two households, same income, different futures	3	1, 4	scheduled
18	The 401(k) match the new hire is missing	3	1, 3	scheduled
19	The cash-flow statement that saves the bakery	3	3, 4	scheduled
20	Buying a car: 60-month vs. 72-month loan	3	3	✓ written
21	The KPIs that broke the team	4	1, 4	scheduled
22	Porter's Five Forces on the EV-charging market	4	4	scheduled
23	The leadership style for a remote-first team	4	2, 4	scheduled
24	A SWOT that became a layoff decision	4	3, 4	✓ written
25	Two strategic options for the regional gym	4	3	scheduled
26	Renters insurance: do I need it for $13/mo?	5	1, 3	scheduled
27	The household budget that keeps overrunning	5	3, 4	scheduled
28	Saving for a house in 5 years	5	3, 4	scheduled
29	Identity theft after a phishing email	5	1, 3	scheduled
30	The first paycheck and the 50/30/20 rule	5	3	✓ written

(Five **unit-opening** cases — one each — appear in the print book. The index above is the planned lineup the bank builds toward; 8 are fully written so far, marked ✓, with the rest added in later releases.)

Case template (every written case follows this structure)

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### Case [#]: [Name] (Unit X / Topics · FRQ type)

**The Situation** — 200–350 words of original scenario.
**The Data** — a table, budget, or financial statement to interpret.
**Multiple-Choice Questions** — 3–4 stimulus-based items, four options each.
**Free-Response Question** — one multi-part (a/b/c) FRQ in an official AP type.
**Project Connection** — a Business Canvas block or a Financial Advisor goal.
**Answer Key** — MCQ answers (1–2 sentence explanations) plus FRQ scoring notes.
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Written Cases

Case 1: Stitch Pop-Up — Should the Founder Quit Her Job? (Unit 1 / Topics 1.1, 1.4, 1.7 · Business Decision)

The Situation

Maya Okonkwo works full time as a registered nurse, earning a steady salary of $5,400 per month. On weekends she runs Stitch Pop-Up, a small side business making hand-embroidered denim jackets that she sells at local markets and through her Instagram account. Customers love that each jacket is customized with their initials, favorite lyrics, or artwork — something no fast-fashion retailer offers. Maya buys blank jackets, thread, and patches for about $28 in materials per jacket and sells each finished piece for $95.

Last month Maya sold 22 jackets. Demand is growing faster than she can sew on weekends, and she has a waitlist. She is tempted to quit nursing and make jackets full time so she can produce far more. If she went full time, she estimates she could realistically make and sell about 50 jackets a month. She has not registered any company; she simply sells under her own name, deposits payments into her personal checking account, and reports the income on her personal taxes. A friend warns her that if a customer ever claimed a jacket caused an allergic reaction, “they could come after everything you own.” Maya isn’t sure whether that’s true, or whether her hobby can really replace a nurse’s paycheck. She wants to make a decision based on numbers, not just excitement about a growing waitlist.

The Data

Stitch Pop-Up (per jacket)	Amount
Selling price	$95
Material cost	$28
Jackets sold last month (weekends only)	22
Estimated jackets/month if full time	50
Maya’s current nursing salary	$5,400 / month

Multiple-Choice Questions

1. The $67 gap between the $95 price and the $28 material cost per jacket best illustrates which concept?

A. Value creation
B. Value capture
C. Barrier to entry
D. Competitive rivalry

2. What is the primary risk Maya takes on if she quits nursing to make jackets full time?

A. She loses limited liability protection she currently has.
B. She gives up a guaranteed salary in exchange for revenue that is not guaranteed.
C. She will owe corporate income tax for the first time.
D. She loses the trademark on her brand name.

3. Because Maya has not registered any entity and sells under her own name, her business is currently a:

A. Corporation, so the company (not Maya) is liable for claims.
B. Limited liability company (LLC), which shields her personal assets.
C. Sole proprietorship, which exposes her personal assets to business claims.
D. Partnership, because customers co-create the designs.

4. Based on her estimate of 50 jackets a month full time, Maya's monthly gross profit (revenue minus materials) would be:

A. $3,350, which is less than her current nursing salary.
B. $4,750, which is more than her current nursing salary.
C. $3,350, which is more than her current nursing salary.
D. $6,700, which is more than her current nursing salary.

Free-Response Question (Business Decision)

Maya must decide whether to (i) quit nursing and go full time, (ii) keep Stitch Pop-Up as a weekend side business, or (iii) test the full-time idea before committing.

a. Explain whether Stitch Pop-Up creates value, captures value, or both, using evidence from the scenario.

b. Identify one risk and one non-financial incentive Maya faces in bringing her jackets to market full time.

c. Recommend one of the three options and justify your recommendation using the data.

Project Connection

Business Canvas — *Value Proposition* and *Revenue Streams*: Maya's customization is the differentiator; her per-jacket margin defines whether the revenue stream can support her.

Answer Key

#	Answer	Explanation
1	**B**	Value capture is charging a price higher than the cost to produce; the $67 difference per jacket is the value Maya captures (EK 1.1.B.3). Value creation is the benefit the jacket gives the customer, not the price–cost gap.

#	Answer	Explanation
2	**B**	The defining risk of entrepreneurship is committing resources — here, giving up a guaranteed $5,400 salary — with no guarantee of revenue or profit (EK 1.4.B.1). She has no liability protection to lose (she is a sole proprietor), so A is wrong.
3	**C**	Operating under her own name with no registered entity makes her a sole proprietor, which carries unlimited personal liability — her personal assets can be reached for business claims (EK 1.7.A.1, 1.7.A.3).
4	**A**	50 × ($95 – $28) = 50 × $67 = $3,350 gross profit, which is below her $5,400 salary — and gross profit is *before* any operating costs (booth fees, shipping, taxes), so her true take-home would be lower still.

FRQ scoring notes (6 points):

- **(a) 2 pts:** 1 pt — creates value (a customized jacket responds to a customer want no mass retailer meets, EK 1.1.B.2); 1 pt — captures value (sells at $95 vs. $28 cost, EK 1.1.B.3). Full credit requires "both" with evidence.
- **(b) 2 pts:** 1 pt — a risk (loss of guaranteed income / no guarantee of profit / unlimited personal liability, EK 1.4.B.1); 1 pt — a non-financial incentive (passion for the craft or satisfaction of solving a customer problem, EK 1.4.B.2). Award the incentive point only if it is non-financial, as asked.
- **(c) 2 pts:** 1 pt — a clear recommendation; 1 pt — justification tied to the data (e.g., "test first: at 50 jackets/month gross profit is only $3,350, below her $5,400 salary and before operating costs, so quitting now is not yet supported — she should first prove she can consistently sell 50/month"). Any option can earn full credit if the justification uses the numbers.

Case 6: The College Side Hustle — Solo Prop or LLC? (Unit 1 / Topic 1.7 · Business Concept Application)

The Situation

Devon Reyes and Priya Shah are college sophomores who run PrintPals, a small 3D-printing service out of their dorm. They print custom phone stands, tabletop-game miniatures, and replacement plastic parts for classmates and local hobby shops. The two split every decision and every dollar of profit evenly. They never signed any paperwork to form a company — they just started taking orders, bought a second printer with pooled cash, and keep the money in a shared spreadsheet.

Business is booming: last term they cleared $9,000 in revenue and reinvested most of it in filament and a third printer. Now a local board-game café wants to place a standing monthly order, and a regional maker-fair is inviting them to sell at a booth. With bigger customers come bigger worries. A hobby shop recently complained that a printed bracket snapped and scratched an expensive display case, hinting it might “seek compensation.” Devon and Priya realize that because PrintPals is just the two of them operating informally, any legal or financial claim against the business could reach their personal savings and even their families’ assets. They are weighing three paths: stay exactly as they are, form a limited liability company (LLC), or eventually become a corporation that could sell shares to raise money for a print farm. They value keeping full control and splitting profits, but they also want to protect themselves as orders — and risks — grow.

The Data

Structure	Personal liability	Control & profit	Access to outside funding
Partnership (current)	Unlimited — owners personally liable	Full control; profits split by owners	Limited (friends, family, small loans)
LLC	Limited — personal assets protected	Owners keep control; profits split	Moderate
Corporation	Limited — company is liable	Board/shareholders share control	High (can issue stock)

Multiple-Choice Questions

1. Because Devon and Priya co-own PrintPals and share profits without having registered any entity, they currently operate as a:

A. Corporation
B. Partnership
C. Limited liability company
D. Sole proprietorship

2. If the hobby shop sues over the broken bracket while PrintPals is still unregistered, the most accurate statement is:

A. Only the business’s bank account is at risk; personal assets are protected.
B. Devon and Priya’s personal assets could be used to satisfy the claim.
C. Neither owner can be held liable because they are students.
D. Liability automatically transfers to their filament supplier.

3. The primary reason Devon and Priya would form an LLC as PrintPals grows is to:

A. Gain the ability to sell shares of stock to the public.
B. Eliminate all taxes on the business’s profits.
C. Protect their personal assets while keeping control of the company.
D. Guarantee the business will become profitable.

4. If PrintPals later needed a large amount of outside capital to build a “print farm,” which structure would give it the greatest access to funding?

A. Sole proprietorship
B. Partnership
C. LLC
D. Corporation

Free-Response Question (Business Concept Application)

a. Identify the form of business organization under which PrintPals currently operates, and state one feature of that form shown in the scenario.

b. Explain the trade-off an LLC would create between liability protection and the owners’ control of the business.

c. Recommend a structure for PrintPals at this stage and justify your recommendation using the situation and the table.

Project Connection

Business Canvas — *Key Partners / Key Resources*: choosing a legal structure shapes how PrintPals can add owners, raise money, and manage risk as it scales.

Answer Key

#	Answer	Explanation
1	**B**	Two or more people co-owning and sharing profits with no registered entity is a partnership (EK 1.7.A.1). A sole proprietorship has a single owner.
2	**B**	Partnerships carry unlimited personal liability, so the owners’ personal assets can be reached to satisfy a business claim (EK 1.7.A. 3).
3	**C**	An LLC’s defining benefit is limiting personal liability while still letting the owners retain control and profits (EK 1.7.A.3). It does not remove taxes or let them issue public stock.
4	**D**	Corporations have the greatest access to funding because they can issue stock to many investors (EK 1.7.A.4); this comes at the cost of shared control with shareholders/a board.

FRQ scoring notes (6 points):

- **(a) 2 pts:** 1 pt — identifies a partnership; 1 pt — cites a feature from the scenario (shared control, evenly split profits, or unlimited personal liability), EK 1.7.A.1–A.3.
- **(b) 2 pts:** 1 pt — an LLC limits/protects personal assets from business claims; 1 pt — explains the retained-control side of the trade-off (owners still run and split the business; note that an LLC involves more paperwork/cost than staying informal). EK 1.7.A.2–A.3.
- **(c) 2 pts:** 1 pt — a clear recommendation (an LLC is the strongest fit given rising liability but a desire to keep control); 1 pt — justification tied to the table/scenario (growing orders and a threatened claim raise liability exposure, and an LLC protects personal assets without surrendering control or issuing stock). A corporation may earn credit only if justified by a genuine need to raise large outside capital.

Case 7: The Salsa Brand — Who Is Really Our Customer? (Unit 2 / Topics 2.1 · Business Canvas Validation)

The Situation

Casa Verde Salsas is a two-year-old brand that makes small-batch fresh salsa sold in refrigerated jars. The founders, Luis and Renata, sell in two ways: through the produce sections of regional grocery chains, and directly to shoppers through a monthly subscription on their website. When asked to describe their customer, they say, "Everyone who likes Mexican food." Their marketing reflects that — broad social posts, generic grocery flyers, and a scattershot ad budget.

The numbers tell a sharper story. Last quarter Casa Verde spent $6,000 on marketing aimed at its website subscription and gained 400 new subscribers. A typical subscriber buys 2 jars per month at $7 each and stays subscribed for about 10 months before canceling. Meanwhile, a survey of 500 buyers revealed clear clusters: one group described themselves as "heat-seekers" who want the spiciest possible salsa; another group prioritized "low-sodium and no preservatives" for health reasons; a third bought mainly for parties and wanted large-format jars. Luis and Renata also keep confusing two groups: the grocery chains that place the wholesale orders, and the families who actually eat the salsa at home. They realize "everyone who likes Mexican food" may be costing them money — the broad message resonates with no one in particular, and they aren't sure which group is worth pursuing first. They want to use their data to pick a focus rather than keep marketing to the whole market at once.

The Data

Website subscription metrics (last quarter)	Value
Marketing spend	$6,000
New subscribers gained	400
Jars per subscriber per month	2
Price per jar	$7
Average subscription length	10 months

Multiple-Choice Questions

1. The grocery chains place Casa Verde's wholesale orders, but families eat the salsa at home. In marketing terms, the families are best described as Casa Verde's:

A. Suppliers
B. Consumers
C. Competitors
D. Distributors

2. Casa Verde's customer acquisition cost (CAC) for its website subscription last quarter was:

A. $6.00 per subscriber
B. $15.00 per subscriber
C. $40.00 per subscriber
D. $2,400 per subscriber

3. The estimated customer lifetime value (CLV) of a typical subscriber is:

A. $70
B. $140
C. $14
D. $1,400

4. Grouping buyers into "heat-seekers," "health-focused," and "party buyers" based on their attitudes and priorities is an example of:

A. Purchasing data from a third-party broker
B. Calculating customer acquisition cost
C. Market segmentation using psychographic characteristics
D. A data breach

Free-Response Question (Business Canvas Validation)

a. Distinguish between a *customer* and a *consumer* for Casa Verde, using the grocery chains and the families as examples.

b. Using the CAC and CLV figures, evaluate whether Casa Verde's website subscription model is financially sustainable.

c. Recommend one segment Casa Verde should target first and justify your recommendation.

Project Connection

Business Canvas — *Customer Segments*: replacing "everyone who likes Mexican food" with a defined target segment and a customer profile is the validation step this case rehearses.

Answer Key

#	Answer	Explanation
1	**B**	The consumer is the person who actually uses the product; the grocery chain that purchases wholesale is the customer. The families who eat the salsa are the consumers (EK 1.1.A.2).
2	**B**	CAC = total marketing costs ÷ new customers = $6,000 ÷ 400 = $15.00 per subscriber (EK 2.1.C.2).
3	**B**	CLV = spend per period × periods = (2 jars × $7) × 10 months = $14 × 10 = $140 (EK 2.1.C.3).
4	**C**	Grouping customers by attitudes, values, and priorities is segmentation using psychographic traits (EK 2.1.A.3, 2.1.B.1). Demographics would be age, income, or location.

FRQ scoring notes (6 points):

- **(a) 2 pts:** 1 pt — customer = the party that buys (the grocery chains placing wholesale orders); 1 pt — consumer = the party that uses/eats it (the families), EK 1.1.A.2.
- **(b) 2 pts:** 1 pt — correct comparison (CLV $140 far exceeds CAC $15, roughly a 9-to-1 ratio); 1 pt — conclusion that the model is sustainable because each subscriber is worth far more than it costs to acquire, EK 2.1.C.2–C.3. A response that computes the numbers but draws no sustainability conclusion earns 1 pt.
- **(c) 2 pts:** 1 pt — names a specific segment (heat-seekers, health-focused, or party buyers); 1 pt — justifies with reasoning (e.g., “target the health-focused segment because ‘no preservatives, low-sodium’ matches the fresh-refrigerated product and supports a premium price, and a focused message is more effective and less costly than appealing to everyone,” EK 2.1.B.2, 2.1.B.4). Any segment can earn full credit with sound justification.

Case 9: The Price Test That Surprised the Founders (Unit 2 / Topic 2.5 · Business Decision)

The Situation

PrepPod is a startup that ships a weekly box of pre-portioned meal ingredients customers cook at home. It costs PrepPod $38 to source, pack, and ship one weekly box — this is its per-unit cost. The founders couldn’t agree on a subscription price, so they ran an A/B test: they sent 2,000 website visitors to a page priced at $60 per week (Version A) and another 2,000 visitors to a page priced at $45 per week (Version B), then measured how many signed up.

The founders expected the cheaper price to be the obvious winner, and at first glance it was: the $45 page produced far more sign-ups and more total revenue. But when their finance-savvy advisor looked at the profit each version generated after covering the $38 fulfillment cost, the result flipped. The lower price attracted many more customers, yet each one contributed so little above cost that the total profit was smaller. The team also noticed the lower price made the brand look less “premium” than the competitors they had positioned against. Now they must choose a launch price. One founder wants to lock in the lower price to grow the customer base as fast as possible, arguing they can always raise it later. Another wants the higher price to protect margins and the brand’s premium image. They agree on one rule: whatever price they pick, it must stay comfortably above the $38 it costs to fulfill each box, or they lose money on every sale.

The Data

A/B test result	Version A	Version B
Weekly price	$60	$45
Website visitors	2,000	2,000
Sign-up (conversion) rate	8%	14%
New sign-ups	160	280
Weekly revenue	$9,600	$12,600
Per-box fulfillment cost	$38	$38

Multiple-Choice Questions

1. Because it costs PrepPod $38 to fulfill each box, a subscription price of $38 or below would be:

A. The most profitable option, since it maximizes sign-ups.
B. Not profitable, because price would not exceed the per-unit cost.
C. An example of value-based pricing.
D. Illegal price discrimination.

2. Version B attracted many more sign-ups than Version A when the price dropped from $60 to $45. This responsiveness to price most directly signals that PrepPod has:

A. Strong pricing power and a highly differentiated product.
B. Little pricing power, because customers respond strongly to price changes.
C. A binding legal constraint on its prices.
D. A completed product life cycle.

3. After covering the $38 fulfillment cost, which version generated more total weekly profit — and by how much?

A. Version B, by $3,000
B. Version A, by $1,560
C. Version B, by $1,960
D. Version A, by $3,520

4. One founder wants to launch at the low $45 price to grow the customer base quickly and raise the price later. This approach is best described as:

A. Value-based pricing
B. Cost-based pricing
C. Penetration pricing
D. Price collusion

Free-Response Question (Business Decision)

a. Calculate the total weekly profit (contribution after the $38 fulfillment cost) for Version A and for Version B. Show your work.

b. Explain what the test results reveal about how responsive PrepPod's customers are to price, and what that means for the company's pricing power.

c. Recommend a launch price and justify it, addressing both the profit figures and the brand's premium positioning.

Project Connection

Business Canvas — *Revenue Streams* and *Value Proposition*: the case links pricing strategy to the per-unit cost floor and to how price signals brand position.

Answer Key

#	Answer	Explanation
1	**B**	A business is not profitable when price is less than or equal to per-unit cost; at or below $38 PrepPod would not clear its own fulfillment cost (EK 2.5.A.2).
2	**B**	A large jump in sign-ups from a price cut shows customers are highly responsive to price, which means the firm has little pricing power (EK 2.5.B.2).
3	**B**	Version A contribution: 160 × ($60 – $38) = 160 × $22 = $3,520. Version B contribution: 280 × ($45 – $38) = 280 × $7 = $1,960. Version A is the more profitable version, by $3,520 – $1,960 = $1,560. The cheaper price won more sign-ups and revenue but less profit — the “surprise” in the case.
4	**C**	Launching at a deliberately low price to attract customers and raising it later is penetration pricing (EK 2.5.A. 6).

FRQ scoring notes (6 points):

- **(a) 2 pts:** 1 pt — Version A contribution = 160 × ($60 – $38) = $3,520; 1 pt — Version B contribution = 280 × ($45 – $38) = $1,960. Work must be shown; correct method with an arithmetic slip earns 1 pt.
- **(b) 2 pts:** 1 pt — customers are highly responsive to price (a 25% price cut nearly doubled sign-ups); 1 pt — therefore PrepPod has little pricing power / low differentiation (EK 2.5.B.1–B.2). Excluded content — do **not** require or reward a price-elasticity coefficient.
- **(c) 2 pts:** 1 pt — a clear price recommendation; 1 pt — justification using both profit and positioning (e.g., "launch at the higher $60 price: it produces $3,520 vs. $1,960 in weekly profit and protects the premium brand image, since value-based pricing suits a differentiated product," EK 2.5.A.3). A low-price recommendation can earn full credit if justified by a growth strategy (penetration pricing) that acknowledges the thinner margin.

Case 13: The Income Statement That Doesn't Match the Cash (Unit 3 / Topics 3.6, 3.8 · Business Concept Application)

The Situation

Timberline Works builds custom wood furniture. At year-end, the owner, Grace Halvorsen, is confused: her accountant's income statement shows the company earned a solid profit, yet her checking account is nearly empty and she is struggling to make payroll this month. "How can we be profitable and broke at the same time?" she asks.

Two things explain the gap. First, Timberline sells many pieces to interior designers on 60-day payment terms, so at year-end customers owed the company $80,000 for furniture already delivered and already counted as revenue — but that cash hasn't arrived yet. Second, Grace used $50,000 of cash late in the year to buy a large stock of premium walnut and oak, betting that lumber prices would rise. That inventory sits in the workshop; it reduced her cash but is not an expense until the wood is built into sold furniture. So the income statement — which records revenue when it is earned and costs when they are incurred — shows a healthy profit, while the cash-flow reality is tight. Grace needs to (1) confirm the profit figure is calculated correctly, (2) understand her margins, and (3) explain to her worried business partner why a profitable company can run short of cash. Her partner keeps insisting the accountant "must have made a mistake," but Grace suspects the statements are right and the real issue is timing.

The Data

Timberline Works — Income Statement (Year Ended Dec. 31)	Amount
Revenue	$420,000
Cost of Goods Sold (COGS)	$252,000
Operating Expenses	$96,000
Interest Expense	$12,000
Tax rate	25%

Multiple-Choice Questions

1. Timberline's gross profit and gross profit margin are:

A. $168,000 and 40%
B. $252,000 and 60%
C. $168,000 and 60%
D. $72,000 and 17%

2. Timberline's operating profit is:

A. $168,000
B. $72,000
C. $60,000
D. $45,000

3. After interest and taxes, Timberline's net income and net profit margin are closest to:

A. $60,000 and 14.3%
B. $45,000 and 10.7%
C. $72,000 and 17.1%
D. $45,000 and 25.0%

4. The best explanation for why Timberline shows a profit but is short on cash is:

A. The accountant recorded revenue that does not exist.
B. Profit and cash flow differ because of the timing of cash receipts and expenses — $80,000 is owed by customers and $50,000 is tied up in new inventory.
C. The company forgot to subtract its interest expense.
D. Net profit margin is negative.

Free-Response Question (Business Concept Application)

a. Calculate Timberline's gross profit, operating profit, pretax income, and net income. Show each step.

b. Calculate the gross profit margin and the net profit margin.

c. Explain why Timberline can report a profit yet be short of cash, and recommend one action Grace could take to improve the company's cash position.

Project Connection

Financial Advisor / Business Finance — connects the income statement (Topic 3.6) to the cash-flow statement (Topic 3.8): profit is earned, but cash is a separate question of timing.

Answer Key

#	Answer	Explanation
1	**A**	Gross profit = $420,000 – $252,000 = $168,000; gross profit margin = $168,000 ÷ $420,000 = 40% (EK 3.6.A.4, 3.6.B.2).

#	Answer	Explanation
2	**B**	Operating profit = gross profit – operating expenses = $168,000 – $96,000 = $72,000 (EK 3.6.A.6).
3	**B**	Pretax income = $72,000 – $12,000 = $60,000; tax = $60,000 × 0.25 = $15,000; net income = $45,000; net margin = $45,000 ÷ $420,000 ≈ 10.7% (EK 3.6.A.9, 3.6.B.4).
4	**B**	Cash flow is not the same as profit; revenue is recorded when earned, so $80,000 in uncollected receivables and $50,000 of cash spent on inventory explain the squeeze (EK 3.8 — cash flow ≠ profit). The statements are not wrong.

FRQ scoring notes (7 points):

- **(a) 3 pts:** 1 pt gross profit $168,000; 1 pt operating profit $72,000; 1 pt pretax $60,000 **and** net income $45,000 (award this point only if both the pretax and the $15,000 tax step lead to $45,000).
- **(b) 2 pts:** 1 pt gross profit margin 40%; 1 pt net profit margin ≈ 10.7%. Margins must use revenue as the denominator (Profit ÷ Revenue).
- **(c) 2 pts:** 1 pt — explains that profit and cash differ due to timing (revenue earned but $80,000 not yet collected; $50,000 cash converted into inventory that isn't yet an expense); 1 pt — a workable action (collect receivables faster / shorten payment terms, slow inventory purchases, or arrange a short-term line of credit), EK 3.8.

Case 20: Buying a Car — 60-Month vs. 72-Month Loan (Unit 3 / Topic 3.2 · Personal Finance)

The Situation

Andre Baptiste just started his first full-time job and needs a reliable used car to get to work. After a $2,000 down payment, he needs to finance $18,000. The car itself secures the loan — if Andre stops paying, the lender can repossess it. His credit union offers him two loan options, shown below. Andre's parents tell him to "just pick the smaller monthly payment," but his coworker warns that the smaller payment might cost him much more over time.

Andre also learns that his interest rate isn't random. When he applied, the credit union pulled his credit report and score. Because he has a short but clean credit history, he qualifies for a decent rate — but a friend with a lower score was quoted rates several points higher for the same car, because lenders charge higher-risk borrowers more to offset the chance of default. Andre has a stable income and could comfortably afford either monthly payment. His goal is simple: get a dependable car while paying as little as possible in total. He is trying to decide whether stretching the loan to 72 months to shrink the monthly payment is smart or whether it's a trap. The dealership finance office keeps steering him toward the longer loan "because it's easier on your budget," which makes him suspicious that the longer loan is better for the lender than for him.

The Data

Loan option	Offer A	Offer B
Amount financed	$18,000	$18,000
Term	60 months	72 months
APR	7%	8%
Monthly payment	$356	$316
Total of all payments	$21,385	$22,723
Total interest paid	$3,385	$4,723

Multiple-Choice Questions

1. Andre's car loan is a *secured* loan because:

A. His income guarantees repayment.
B. The car serves as collateral the lender can repossess if he defaults.
C. The credit union cannot charge interest on it.
D. It has a fixed monthly payment.

2. Offer B has the lower monthly payment. The main reason it is *not* automatically the better deal is that Offer B:

A. Has a lower APR than Offer A.
B. Must be repaid in fewer months.
C. Spreads payments over more months, so Andre pays more total interest.
D. Requires a larger down payment.

3. Choosing Offer B instead of Offer A would cost Andre approximately how much more in total interest over the life of the loan?

A. $40
B. $1,338
C. $3,385
D. $4,723

4. Andre's friend was quoted a higher interest rate for the same car mostly because the friend:

A. Wanted a shorter loan term.
B. Had a lower credit score, signaling higher default risk to the lender.
C. Made a larger down payment.
D. Applied at a different time of year.

Free-Response Question (Personal Finance)

a. Identify which loan offer costs Andre less in total, and state the dollar difference.

b. Explain the trade-off between a loan's monthly payment and its total interest cost, using the two offers.

c. Andre has a stable income and wants to minimize total cost. Recommend an offer and justify your choice.

Project Connection

Financial Advisor — *Debt / Borrowing goal*: the case shows how loan term and credit score shape the true cost of borrowing (Topic 3.2).

Answer Key

#	Answer	Explanation
1	**B**	A secured loan is backed by collateral; here the car can be repossessed if Andre defaults (EK 3.2.A.2).
2	**C**	Offer B's lower monthly payment comes from stretching repayment over 72 months at a higher APR, which raises total interest to $4,723 vs. $3,385 (EK 3.2.C — total cost of credit).
3	**B**	$22,723 – $21,385 = $1,338 more in total payments, all of it additional interest since the amount financed is identical.
4	**B**	Lenders charge higher-risk (lower-score) borrowers higher interest to offset default risk (EK 3.2.B.1).

FRQ scoring notes (6 points):

- **(a) 2 pts:** 1 pt — Offer A costs less overall; 1 pt — the difference is about $1,338 ($22,723 – $21,385).
- **(b) 2 pts:** 1 pt — a longer term lowers the monthly payment (easier monthly cash flow); 1 pt — but a longer term (plus the higher APR here) increases total interest paid, so the cheaper monthly payment costs more overall, EK 3.2.C.
- **(c) 2 pts:** 1 pt — recommends Offer A; 1 pt — justifies it with the goal and data (Andre can afford the $356 payment on a stable income and saves roughly $1,338 in interest by choosing the 60-month loan). A recommendation of Offer B can earn at most partial credit and only if the student explicitly trades lower total cost for a specific budget/cash-flow need.

Case 24: A SWOT That Became a Layoff Decision (Unit 4 / Topic 4.4 · Business Decision)

The Situation

NorthPeak Outfitters is a regional chain of three outdoor-gear stores. For a decade its knowledgeable staff, loyal local hikers, and prime downtown flagship location made it the place to buy boots and backpacks. But online retailers now undercut NorthPeak's prices, its inventory-tracking software is a decade old and constantly miscounts stock, and a large national outdoor chain has announced it will open a superstore three miles from

NorthPeak's downtown flagship. At the same time, interest in local hiking has surged since the county expanded its trail network, and NorthPeak has never launched an e-commerce site — an obvious growth opening.

The owner, Priya Anand, runs a SWOT analysis before making any decision. As she fills in the grid, one number keeps drawing her eye: Store 3, in a fading strip mall, has posted an operating loss for two straight years, while Stores 1 and 2 remain solidly profitable. Closing Store 3 would mean laying off eight employees — a painful choice she doesn't take lightly. But she also knows a good strategic decision should rest on evidence about both the company's internal condition and the external forces bearing down on it, not on gut feeling or loyalty to a location. Her business partner argues that "a real outdoors company never closes a store," while Priya counters that keeping an unprofitable store open out of sentiment ignores what the data and the SWOT are telling them. She wants to use the framework to decide whether to close Store 3 and redirect the savings into the e-commerce launch the growing hiking market seems to invite.

The Data

NorthPeak SWOT (selected items)	
Strengths (internal)	Knowledgeable staff; loyal local customers; prime downtown location
Weaknesses (internal)	Prices higher than online; outdated inventory software; unprofitable Store 3
Opportunities (external)	Growing local hiking interest; no e-commerce site yet
Threats (external)	Online retailers undercut prices; national chain entering the region

Store operating profit (last year)	**Amount**
Store 1	+$140,000
Store 2	+$60,000
Store 3	–$45,000

Multiple-Choice Questions

1. "A large national chain is preparing to open a superstore three miles away." In NorthPeak's SWOT, this factor is best classified as a(n):

A. Strength
B. Weakness
C. Opportunity
D. Threat

2. Which of the following is an *internal weakness* rather than an external threat?

A. Online retailers undercutting NorthPeak's prices
B. The outdated inventory software and the unprofitable Store 3
C. The national chain entering the region
D. The general shift of shoppers toward online buying

3. Store 3’s –$45,000 operating result most directly supports classifying it under which SWOT quadrant?

A. Strength
B. Weakness
C. Opportunity
D. Threat

4. The main reason Priya completes a SWOT *before* deciding whether to close Store 3 is to:

A. Guarantee the store becomes profitable again.
B. Base the strategic decision on internal and external factors rather than on gut feeling.
C. Avoid having to lay off any employees.
D. Eliminate all competition in the region.

Free-Response Question (Business Decision)

a. Classify these two factors into the correct SWOT quadrants: (i) the surge in local hiking interest and (ii) the outdated inventory software.

b. Explain how the store operating-profit data supports classifying Store 3 as a weakness.

c. Recommend whether NorthPeak should close Store 3 and invest in an e-commerce site, and justify your recommendation using the SWOT.

Project Connection

Business Canvas / Strategy — a SWOT converts scattered facts into a structured basis for an evidence-based strategic decision (Topic 4.3, 4.4).

Answer Key

#	Answer	Explanation
1	**D**	A competitor entering the market is an external factor that could harm NorthPeak — a threat (EK: SWOT external factors).
2	**B**	Weaknesses are internal, controllable shortcomings; the aging software and the money-losing Store 3 are internal. Online competition and the national chain are external threats.
3	**B**	A store losing $45,000 a year is an internal problem NorthPeak controls — a weakness, not an external threat.

#	Answer	Explanation
4	**B**	The purpose of a SWOT is to ground a strategic decision in evidence about internal and external factors rather than gut feeling (EK: using SWOT for strategic decision making; evidence-based decision making, Topic 4.3).

FRQ scoring notes (6 points):

- **(a) 2 pts:** 1 pt — surging local hiking interest is an **opportunity** (external, favorable); 1 pt — outdated inventory software is a **weakness** (internal, unfavorable).
- **(b) 2 pts:** 1 pt — Store 3 posted a –$45,000 operating loss (two years running); 1 pt — because it is a controllable, internal shortcoming dragging on the company, it belongs in the Weaknesses quadrant. (Strong answers note Stores 1 and 2 are profitable by contrast.)
- **(c) 2 pts:** 1 pt — a clear recommendation; 1 pt — justification tied to the SWOT (e.g., "close Store 3 to remove a weakness and redirect savings toward e-commerce, which turns the 'growing hiking interest' opportunity into a defense against the online and national-chain threats"). Award full credit to a well-argued decision to keep Store 3 only if it addresses the loss with a concrete turnaround plan and cautions that some of Store 3's costs may be shared/fixed and not fully eliminated by closing it.

Case 30: The First Paycheck and the 50/30/20 Rule (Unit 5 / Topic 5.1 · Personal Finance)

The Situation

Jordan Ellis just landed a first salaried job and is thrilled about the $48,000-a-year offer — until the first paycheck lands. Expecting to take home one-twelfth of $48,000 ($4,000) each month, Jordan is surprised to see the deposit is much smaller. The pay stub lists several deductions taken out before the money ever reaches Jordan's account: federal income tax, state income tax, Social Security (6.2% of pay), and Medicare (1.45% of pay). Jordan realizes the difference between *gross* pay (what you earn) and *net* pay (what you actually take home) is not small.

Determined to be responsible, Jordan wants to build a budget using the 50/30/20 rule, which splits *take-home* pay into needs (50%), wants (30%), and savings or debt repayment (20%). But there's a complication: Jordan has found an apartment for $1,650 a month and assumed rent would fit easily under the "needs" half of the budget. A financially savvy older sibling raises an eyebrow: "Run the numbers on your actual take-home pay first — rent might already blow past your entire needs budget." Jordan wants to see whether the apartment is affordable, and if not, what to change, before signing a 12-month lease. The goal is a realistic budget built on the paycheck's real numbers, not on the flattering $4,000 gross figure that first got Jordan excited.

The Data

Jordan's monthly pay stub	Amount
Gross monthly pay	$4,000
Federal income tax	$480

Jordan's monthly pay stub	**Amount**
State income tax	$160
Social Security (6.2%)	?
Medicare (1.45%)	?
Net (take-home) pay	?

Multiple-Choice Questions

1. The gap between Jordan's $4,000 gross pay and the smaller amount deposited is explained by:

A. Investment losses
B. Payroll deductions such as taxes, Social Security, and Medicare
C. A bank error
D. The 50/30/20 rule

2. Jordan's Social Security deduction (6.2% of $4,000) is:

A. $58.00
B. $248.00
C. $306.00
D. $62.00

3. After the four deductions (federal $480, state $160, Social Security, and Medicare), Jordan's total deductions and net pay are:

A. $640 in deductions; $3,360 net
B. $946 in deductions; $3,054 net
C. $1,000 in deductions; $3,000 net
D. $786 in deductions; $3,214 net

4. Applying the 50/30/20 rule to Jordan's *take-home* pay, how much should go toward savings or debt repayment each month?

A. $610.80
B. $800.00
C. $916.20
D. $1,527.00

Free-Response Question (Personal Finance)

a. Calculate Jordan's Social Security deduction, Medicare deduction, and net (take-home) pay. Show your work.

b. Using the 50/30/20 rule on take-home pay, calculate the dollar amount Jordan should budget for needs, for wants, and for savings.

c. The apartment costs $1,650 per month. Evaluate whether it fits within the “needs” portion of Jordan’s budget, and recommend one adjustment if it does not.

Project Connection

Financial Advisor — *Budgeting goal*: the case connects gross-vs-net pay (Topic 5.1) to a working 50/30/20 budget and a real housing decision.

Answer Key

#	Answer	Explanation
1	**B**	Gross pay minus payroll deductions (income taxes plus Social Security and Medicare) equals net pay; those deductions create the gap (EK: gross vs. net income, Topic 5.1).
2	**B**	Social Security = 6.2% × $4,000 = $248.00 (EK: payroll deductions). Option A is the Medicare amount.
3	**B**	Medicare = 1.45% × $4,000 = $58; total deductions = $480 + $160 + $248 + $58 = $946; net pay = $4,000 − $946 = $3,054.
4	**A**	20% × $3,054 (take-home pay) = $610.80. Applying 20% to gross ($800) is the common error the distractor tests.

FRQ scoring notes (7 points):

- **(a) 3 pts:** 1 pt — Social Security = $248 (6.2% × $4,000); 1 pt — Medicare = $58 (1.45% × $4,000); 1 pt — net pay = $4,000 − $946 = $3,054.
- **(b) 3 pts:** 1 pt — needs = 50% × $3,054 = $1,527; 1 pt — wants = 30% × $3,054 = $916.20; 1 pt — savings = 20% × $3,054 = $610.80. Deduct nothing for reasonable rounding, but the rule must be applied to take-home pay, not gross.
- **(c) 1 pt:** identifies that $1,650 rent exceeds the entire $1,527 “needs” budget (by $123) with no room for other needs, and recommends one workable fix (a cheaper apartment, a roommate to split rent, or increasing income) — since rent alone should not consume more than the needs allotment.

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