ANSWERS

Unit 1. What is Financial Literacy?

Section 1.2 Quiz

1 What is debt?
Correct Answer: D

2 What is interest?
Correct Answer: B

3 What is a budget?
Correct Answer: C

4 What is a credit score used for?
Correct Answer: A

5 What is the definition of income?
Correct Answer: D

6 What does saving involve?
Correct Answer: A

7 What is credit?
Correct Answer: A

8 What are expenses?
Correct Answer: C

9 What is an investment?
Correct Answer: D

10 What is identity theft?
Correct Answer: B

11 What is compound interest?
Correct Answer: B

12 What is insurance?
Correct Answer: C

13 What is diversification?
Correct Answer: C

14 What is entrepreneurship?
Correct Answer: D

15 What is gross income?
Correct Answer: A

16 What is net income?
Correct Answer: B

17 What is inflation?
Correct Answer: A

18 Where are shares of publicly traded companies bought and sold?
Correct Answer: B

19 What is financial planning?
Correct Answer: B

20 What is commission?
Correct Answer: C

21 What is a paycheck?
Correct Answer: D

22 What are taxes?
Correct Answer: D

23 What is retirement planning?
Correct Answer: C

24 What is a mortgage?
Correct Answer: A

25 What is a credit card?
Correct Answer: C

26 What is financial literacy?
Correct Answer: A

27 What is estate planning?
Correct Answer: C

28 What is an asset?
Correct Answer: B

29 What is a liability?
Correct Answer: C

30 What is net worth?
Correct Answer: B

31 What is financial risk?
Correct Answer: B

32 What is cash flow?
Correct Answer: B

33 What is liquidity?
Correct Answer: C

34 What is bankruptcy?
Correct Answer: C

35 What is amortization?
Correct Answer: A

36 What is a dividend?
Correct Answer: B

37 What is capital?
Correct Answer: B

38 What is principal?
Correct Answer: B

39 What is a mutual fund?
Correct Answer: A

40 What is a stock?
Correct Answer: A

41 What is a bond?
Correct Answer: A

42 What is a bear market?
Correct Answer: D

43 What is a bull market?
Correct Answer: A

44 What is a budget deficit?
Correct Answer: B

45 What is a budget surplus?
Correct Answer: A

46 What is a will?
Correct Answer: D

47 What is a checking account?
Correct Answer: A

48 What is a savings account?
Correct Answer: A

49 What is a credit report?
Correct Answer: D

50 What is a financial institution?
Correct Answer: C

51 What is a down payment?
Correct Answer: A

52 What is a credit limit?
Correct Answer: C

53 What is a minimum payment?
Correct Answer: B

54 What is a tax deduction?
Correct Answer: A

55 What is a tax credit?
Correct Answer: A

56 What is a prepayment penalty?
Correct Answer: C

57 What is a capital gain?
Correct Answer: A

58 What is a capital loss?
Correct Answer: A

59 What is revenue?
Correct Answer: C

60 What is a loan?
Correct Answer: B

61 What is capital appreciation?
Correct Answer: A

62 What is capital depreciation?
Correct Answer: C

63 What is inventory?
Correct Answer: B

64 What is personal finance?
Correct Answer: D

65 What is sales tax?
Correct Answer: B

66 What is income tax?
Correct Answer: D

67 What is corporate tax?
Correct Answer: B

68 What is taxable income?
Correct Answer: C

69 What is profit?
Correct Answer: B

70 What is a gratuity?
Correct Answer: B

71 What is investment income tax?
Correct Answer: B

72 What is inheritance tax?
Correct Answer: C

73 What is capital gains?
Correct Answer: B

74 Your equity in a home increases if:
Correct Answer: C

75 What is an employee?
Correct Answer: C

76 What is an employer?
Correct Answer: C

77 During a recession it is common to observe:
Correct Answer: B

78 What is an entrepreneur?
Correct Answer: C

79 What is a variable cost?
Correct Answer: B

80 What is cryptocurrency?
Correct Answer: A

81 What is a fixed cost?
Correct Answer: B

82 Correct Answer: B. False

83 Correct Answer: B. False

84 Correct Answer: B. False

85 Correct Answer: B. False

86 Correct Answer: A. True

87 Correct Answer: A. True

88 Correct Answer: B. False

89 Correct Answer: A. True

90 Correct Answer: B. False

Unit 2. Making Informed Purchasing Decisions

Section 2.1 Discounts and Sale Prices

1 $270

2 $102

3 $675

4 $320

5 $105

6 $63

7 $112.50

8 $90

9 Store A: 25% of $80 = $20 off. Store B: $10 off. Therefore, Store A's coupon offers a better deal.

10 Store E: $5 off. Store F: 20% of $30 = $6 off. Therefore, Store F's coupon offers a better deal.

11 Store G: 40% of $50 = $20 off. Store H: $15 off. Therefore, Store G's coupon offers a better deal.

12 Store I: 10% of $70 = $7 off. Store J: $8 off. Therefore, Store J's coupon offers a better deal.

13 Store A = $60

Store B = $65

Store C = $72

Store A saves you the most money with a discount of $20.

14 Store X = $84 × 4 = $336

Store Y = $100 × 4 = $400

Store Z = $120 × 2 = $240

Store Z saves you the most money since you will get two free shampoo bottles.

15 You save the cost of one shampoo, which is $50.

16 $88/$220 × 100 = 40% discount rate.

17 Original price = $110/0.80

Original price = $137.50

18 $20/$100 × 100 = 20%

19 $40 - $5 = $35. You will save $5 with the coupon.

20 0.15 × $200 = $30. You will save $30 with the coupon.

21 You will get back $20 with the coupon.

22 You will get back $16 with the coupon.

23 Store A: $20 × 3 = $6.67 per item. Store B: $35 × 5 = $7 per item.

Store A offers a better deal with a price per item of $6.67.

24 Store A: $12 × 2 = $6 per item. Store B: $26 4 = $6.50 per item.

Store A offers a better deal with a price per item of $6.

Section 2.2 Unit Price and Converting Units of Measure

1 $1.20

2 The price per foot = $0.40

3 The price per inch = $0.02

4 The price per cup is $0.35

5 The price per ounce = $0.05

6 The price per kg = $7

7 The price per liter = $7.20

8 The price per kg is $2.20 (rounded to the nearest cent)

9 The price per gallon is $5.02 (rounded to the nearest cent)

10 The soil costs $1.00 per pound

11 The paint costs $4.43 per quart

Section 2.3 Comparing Offers

1 Both stores have the same unit rate of $0.30 per pen.

2 Both stores have the same unit rate of $0.50 per cookie.

3 FreshFarm: $1.50 per pound. FruitMart: $1.40 per pound.

FruitMart has a lower unit rate of $1.40 per pound, so it offers a better price per pound for apples compared to FreshFarm.

4 Both stores have the same unit rate of $0.25 per ounce, so they offer the same price per ounce.

5 SportsGear: $15 ÷ 10 = $1.50 per tennis ball. PlayPro: $10 ÷ 6 ≈ $1.67 per tennis ball. SportsGear has a lower unit rate of $1.50 per tennis ball, so it offers a better price per tennis ball compared to PlayPro.

6 Both stores have the same unit rate of $0.01 per page, so they offer the same price per page.

7 CoffeeHouse: $8 ÷ 12 ≈ $0.67 per ounce. BrewCafe: $12 ÷ 16 = $0.75 per ounce

CoffeeHouse has a lower unit rate of $0.67 per ounce, so it offers a better price per ounce compared to BrewCafe.

8 Both stores have the same unit rate of $2 per hour, so they offer the same price per hour.

Section 2.4 Comparing Options

1 Option 1: Total cost = $19.99

Option 2: Total cost = $1.29 × 20 = $25.80

Therefore, the monthly subscription plan (option 1) is more financially sensible for Jenna.

2 Option 1: Monthly book subscription service cost per month = $19.99 + ($1.25 × 3) = $23.74

Option 2: Total cost = $2.99 × 8 = $23.92

Therefore, the monthly book subscription service is slightly more financially sensible for Emily.

3 The cost of renting a movie from the local store is $2.49, while the cost of the streaming service is $15 per month.

If Alex watches 6 movies per month, the cost of renting would be 6 x $2.49 = $14.94, while the cost of the streaming service would be $15. Therefore, renting movies from the local store is slightly cheaper.

4 The cost of the gym membership per month is $30, while the cost of a daily pass is $2.25 each time. If Amy goes to the gym three times a week, the cost of daily passes would be 3 x 4 weeks x $2.25 = $27 per month. Therefore, the daily passes are more cost effective.

5 To calculate the cost per year, divide the total cost by the expected lifespan. For the repaired laptop: $150/3 years = $50/year. For the new laptop: $800/5 years = $160/year. Therefore, the repaired laptop has a lower cost per year.

6 Total cost of the used bike = $200 + $50 = $250. By choosing the used bike, Mark can save $100 compared to buying a new bike ($350 - $250).

7 Annual savings = ($50 - $10) × 12 months = $480

8 Cost for the hair dryer = $40 for two years.

Cost for hair salon visits = $1 × 2 visits/month × 24 months = $48. The hair dryer is the more cost-effective option.

9 Cost per month for monthly membership = $50. Cost per month for annual membership = $500/12 months = $41.67. Since the annual membership has a lower cost per month, it is the more cost-effective option.

10 Cost of cafe coffee in a month: $3.65 × 20 = $73. Cost of coffee beans in a month to brew 20 cups of coffee: $10 × 4 = $40.

Savings per month by brewing her own coffee: $73 - $40 = $33

11 Cost of cooking at home for 7 days = $375

Cost of eating at a restaurant: ($20 × 1.05) × 3 meals × 7 days = $441

Cost of ordering food delivery: ($30 × 1.02) × 3 meals × 7 days = $642.60

Based on the calculations, cooking at home is the most cost-effective option per week.

Let's Explore

12 Option 1: Cost without warranty: $1,000

Option 2: Cost with warranty: $1,150

Expected Repair/Accidental Damage Cost = Probability of Repair x cost of Repair

0.60 × $1,000 = $600

In this scenario, the expected repair and accidental damage cost is higher than the cost of the warranty. Given that Emily will rely heavily on the laptop as well as the relatively high likelihood of needing repairs or encountering accidental damage, it is probably a good idea for Emily to purchase the warranty.

13 Option 1: Cost without warranty = $800

Option 2: Cost with warranty = $975

Since Sarah plans on replacing the phone with a new one next year, she could forgo purchasing the warranty and apply the $175 towards her new phone next year. However, she should still consider the risks of repair costs if she purchases the phone without a warranty.

14 Option 1: Cost without warranty = 3 × $800 = $2,400

Option 2: Cost with warranty = $2,400 + $200 = $2,600

Expected Repair Cost: 0.10 × $2,400 = $240

Even though they estimate only a 10% chance of needing repairs, Tom and Lisa might find value in the warranty due to the cumulative potential repairs on multiple appliances and the convenience of a bundled coverage.

Section 2.5 Square Footage Price and Property Comparison

1 Casablanca: $300,000/1,500 = $200/sq. ft

Willows Creek: $360,000/1,800 = $200/sq. ft

The price per square foot is the same for both properties.

2 Property 1: $200/sq ft

Property 2: 167.86/sq ft

Property 3: $210/sq. ft

Property 2 offers the best value based on lowest price per square foot.

3 10,000/10.764 = 929.03 sq meters (rounded to two decimal places)

929.03 × $250 = $232,257.50

The cost of purchasing the land is approximately $232,257.50.

4 Apartment A: $200 × 10.764 = $2,152.80 per square foot.

Apartment B has a lower cost per square foot ($20/sq ft)

5 150 sq meters × 10.764 = 1,614.6 sq ft

1,614.6 sq ft × 14 AED/sq ft = AED 22,604.40

6 (a) Service charges: 14 EUR × 450 = 6,300 EUR

(b) Commission: 0.02 × 500,000 EUR = 10,000 EUR

7 (a) 250 × AED 10 = AED 2,500

(b) AED 27,650 × 0.05 = AED 1,382.50

Section 2.6 Currency Exchanges

1. 202.50 AED
2. 400 AED × (1 GBP/4.25 AED) = 94.12 GBP (rounded to two decimal places). Sara received 94.12 GBP.
3. 250 GBP/1,250 AED. 1 AED = 0.20 GBP
4. 1,500 AED x (1 GBP/4.75 AED) = 315.79 GBP (rounded to two decimal places)
5. 150 GBP × 4.60 AED/GBP = 690 AED
6. 20,000 NGN × (1 USD/400 NGN) = 50 USD
7. 1,500 USD/500,000 NGN = 0.003

   1 NGN = 0.003 USD
8. $1,200 × 410 NGN/USD = 492,000 NGN
9. 1,000,000 NGN × (1 USD/380 NGN) = 2,631.58 USD (rounded to two decimal places)
10. USD 500 × 440 NGN/USD = 220,000 NGN
11. 1,500 CAD × (0.57 JOD/CAD) = 855 JOD
12. 4,250 JOD/10,000 CAD. 1 CAD = 0.425 JOD
13. 80 JOD × (1 CAD/0.43 JOD) = 186.05 CAD (rounded to two decimal places)
14. 2,000 CAD × (0.50 JOD/CAD) = 1,000 JOD
15. 500 CAD × 0.56 JOD/CAD = 280 JOD
16. 500 GBP/2,500 AED. 1 AED = 0.20 GBP
17. $800 × 16.50 ZAR/USD = 13,200 ZAR
18. 2,500 CAD × (0.55 JOD/CAD) = 1,375 JOD
19. 600 GBP × 5.10 AED/GBP = 3,060 AED
20. 1,000 EUR × (1.50 AUD/EUR) = 1,500 AUD

21 1,750 EUR /2,500 AUD. I AUD = 0.70 EUR

22 600 EUR × 1.20 AUD/EUR = 720 AUD

23 3,200 EUR /5,000 AUD. I AUD = 0.64 EUR

24 800 EUR × 1.40 AUD/EUR = 1,120 AUD

25 2,000 ARS × (0.06 BRL/ARS) = 120 BRL

26 1,500 COP × (0.003 PEN/COP) = 4.50 PEN

27 100,000 CLP × (0.09 ARS/CLP) = 9,000 ARS

28 500 BRL × (8.50 UYU/BRL) = 4,250 UYU

29 1,000 PEN × (0.60 BOB/PEN) = 600 BOB

30 100,000 JPY × (1 USD/110 JPY) = 909.09 USD (rounded to two decimal places)

31 50,000 JPY × (1 USD/112 JPY) = 446.43 USD (rounded to two decimal places)

32 111,000 JPY/1,000 USD. 111 JPY = 1 USD

33 200,000 JPY × (1 AUD/85 JPY) = 2,352.94 AUD (rounded to two decimal places)

34 50,000 INR × (1 GBP/100 INR) = 500 GBP

35 5,000 INR × (1 USD/75 INR) = 66.67 USD (rounded to two decimal places)

36 75,000 INR/1,000 USD. I USD = 75 INR

37 10,000 INR × (1 CAD/55 INR) = 181.82 CAD (rounded to two decimal places)

38 Cost in Dollars: 0.05 ETH × $2,500/ETH = $125

39 Cost in Dollars: 0.1 BTC × $40,000/BTC = $4,000

40 Cost in USD = 800 EUR × 1.15USD/EUR = 920 USD

Section 2.7 Renting v. Buying

1 For purchasing: Total cost = $25,000

For renting: Total cost = $400 × 12 months/year × 5 years.

Total cost = $24,000

In this case, renting costs less.

2 For purchasing: Total cost = $60

For renting: Total cost = $1.20 × 52 weeks. Total cost = $62.40.

In this case, purchasing the textbook costs less than renting.

3 For purchasing: Total cost = $79.99

For renting: Total cost = $13.50 × 6 occasions = $81

In this case, purchasing the dress of $79.99 is more financially sensible.

4 For purchasing: Total cost = $800

For renting: $40 × 12 months/year × 2 years = $960

In this case, purchasing is more cost-effective since the total cost of purchasing is $800, which is lower than the total cost of renting at $960.

5 For purchasing: Total cost = $200

For renting: Total cost = $15 × 10 days = $150

In this case, renting is more financially sensible since the total cost of renting is $150, which is lower than the total cost of purchasing at $200.

Let's Explore

6 Compare the cost of leasing to the total cost of buying:

Lease cost: $14,400 for a 48 month term.

Purchase cost: $27,108.12 ($564.75/month for 48 months)

$5,000 (down payment) + $20,000 (loan principal) + $2,108.12 (interest)

Buying a Car

Pros:

- Ownership: You build equity and eventually own the car.
- Long-term savings: Usually, buying a car will lead to savings compared to the cost of continued leasing.
- No mileage limits: You can drive as much as you want without worrying about mileage penalties that may apply to leased cars.
- Customization: You can modify and personalize the car to your liking.

Cons:

- Higher initial costs: Down payments can be high or financially difficult to obtain.
- Depreciation: The car's value depreciates over time, affecting resale value.
- Maintenance costs: You are responsible for all maintenance and repairs once the warranty expires.
- Risk of obsolescence: The car's technology and features might become outdated.

Leasing a Car

Pros:

- Lower initial costs: Typically requires a smaller down payment or fee upfront compared to purchasing.
- Easy Transitions: You can drive a new car with the latest features every few years.
- Limited repair costs: The car is usually under warranty for the lease duration.

Cons:

- No ownership: You don't build equity or own the car at the end of the lease (unless it is a rent-to-own type of contract).
- Mileage limits: Exceeding mileage limits results in additional charges.
- Wear and tear penalties: You'll pay for excessive wear and tear on the car.
- Higher long-term costs: Continually leasing can be more expensive in the long run.
- Early termination fees: Exiting the lease early can be costly.

Ultimately, the decision depends on your preferences, financial situation and how long you plan to keep the car. If you value ownership and plan to keep the car for a long time, then buying may be better. If you prefer lower monthly payments and like having a new car every few years, then leasing could be more suitable.

7 Compare the cost of leasing to the total cost of buying property.

Cost of leasing: $18,000 per year ($1,500/month)

Cost of buying: $472,486.82 ($1,145.80/month for 30 years)

$60,000 (down payment) + $240,000 (principal) + $172,486.82 (interest)

Leasing

Pros:

- Lower initial costs: Leasing requires a smaller upfront payment compared to purchasing.
- Flexibility: Leasing allows you to move easily at the end of a lease term.
- Less responsibility: Major maintenance and repair costs are often the landlord's responsibility.

Cons:

- No equity: You don't build equity or ownership in the property (unless it is a lease-to-own arrangement).
- Rent increases: Landlords can increase rent after the lease term.
- Limited customization: You may have restrictions on how you can personalize the property.
- Other restrictions: The landlord may not allow you to have pets.

Buying

Pros:

- Equity building: Mortgage payments contribute towards building ownership and equity.
- Long-term investment: Real estate can appreciate, potentially leading to financial gains.
- Stability: Your monthly mortgage payments remain relatively stable over time.
- Personalization: You have more freedom and flexibility to customize and modify your property.

Cons:

- Higher initial costs: Purchasing requires a larger down payment and closing costs.
- Long-term commitment: You are tied to the property for the duration of the mortgage (unless you decide to sell the property).
- Maintenance and associated costs: You are responsible for all maintenance and repairs, as well as applicable property tax.
- Market risk: Property values can fluctuate, affecting potential resale value.

- Higher monthly payments: Monthly mortgage payments can end up being higher than rent.
- Cost of borrowing: Cost of borrowing, especially with higher interest rates can be financially draining.

Ultimately, the decision between leasing and purchasing depends on your financial situation, long-term goals and personal preferences. If you value ownership, building equity and stability, then purchasing may be the better choice. However, if you prefer flexibility and lower initial costs, leasing may be the better choice.

Unit 3. Budgeting

Section 3.1 Multiple Purchases and Budgeting

1 Yes. Total cost of items = $45 + $30 + $20 = $95

2 No. Total cost of three items = $800 + $102 + $27 = $929

3 No. Total cost of items after discount: $41.50

4 No. Total cost of items after discount: $217.50

5 $100 + $1 + $15 - $50 = $66

6 0.20 × $400 = $80

7 Yes, since you will still have $150 after paying rent and monthly expenses.

8 No. $250 + $30 = $280. If you purchase the phone you will only have $20 left.

9 Amount allocated to savings = $150

Amount allocated to spending = $200

Amount allocated to donating = $150

10 Amount allocated to accommodation = $400

Amount allocated to transportation = $250

Amount allocated to activities = $350

11 Amount allocated to groceries = $300

Amount allocated to dining out = $180

Amount allocated to entertainment = $120

12 Amount allocated to clothes = $480

Amount allocated to shoes = $200

Amount allocated to accessories = $120

13 Amount allocated to savings = $120

Amount allocated to spending = $160

Amount allocated to charity = $120

14 Amount allocated to clothes = $240

Amount allocated to electronics = $360

Amount allocated to books = $600

15 Amount saved for the concert ticket = $200

Amount spent on the phone = $150

Amount allocated to going out = $150

16 Amount allocated to donations = $120

17 John should allocate $150 for books, $200 for meals, $100 for entertainment, and $50 for other expenses.

18 Emily should allocate $245 for meals, $140 for entertainment, and $157.50 each for books and other expenses.

19 $350

20 $780

21 $60

22 $4,800

23 $600

24 No, Dana cannot afford all the items on the list because the total cost of the items is: $2.50 + $3.00 + $2.20 + $8.50 + $4.00 = $20.20

Section 3.2 50/30/20 Rule

1 John should allocate $1,500 for needs, $900 for wants, and $600 for savings and debt repayment.

2 Mary should allocate $2,500 for needs, $1,500 for wants, and $1,000 for savings and debt repayment.

3 Sara should allocate $1,250 for needs, $750 for wants, and $500 for savings and debt repayment.

4 Wants (30% of income) = $1,350. Therefore, if he spends $1750 on vacation he will exceed the 30% "Wants" allocation under the 50/30/20 rule.

5 Needs = 0.5 × $6,000 = $3,000. Yes, Nafisa can spend $2,500 on the braces she needs, while following to the 50/30/20 rule.

6 Needs: Rent, groceries

Wants: Dining out, Netflix subscription, new iphone 13

Savings/Debt Repayment: Retirement fund

7 Needs: Health insurance, utility bills

Wants: Movie tickets, gym membership

Savings/Debt Repayment: Emergency fund, vacation savings

Let's Explore

8 a) The unexpected car repair bill of $800 could disrupt your original plans to purchase the gadget and go on vacation. Depending on what is still unused under your "savings" portion of $600, you may be able to use that for your car repair bill, along with $200 from your "wants" category. Since there would only be $700 left for "wants," you would likely have to delay purchasing the $300 gadget, although you would still have sufficient funds to go on vacation for $600. (Alternatively, you could decide to forgo the vacation and purchase the gadget instead).

b) Factors to consider:

- Urgency of the car repair: Is it a safety concern or can it wait?
- Importance of the vacation and gadget: Can you delay these purchases without significant consequences?
- Emotional satisfaction vs. financial security: Balancing the immediate gratification of wants against the importance of being financially prepared for emergencies.

c) Having an emergency fund in place would give you the peace of mind to confidently handle unexpected expenses. If you had set aside an emergency fund, you could use it to cover the car repair bill without sacrificing your original plans. This helps you maintain a sense of financial stability while ensuring that you can still pursue your goals without compromising your financial well-being.

Unit 4. Shared Costs

Section 4.1 Dividing the Bill and Tip

1 $34.50

2 $28.80

3 $22.13 (rounded to the nearest cent)

4 $38.33 (rounded to the nearest cent)

5 You pay $60 and the remaining three people each pay $20.

6 You will pay $56 while your three friends will each pay $36.

7 $60

8 The friend who can only pay half of their portion will pay $16/2 = $8.

Therefore, you and the other three friends will each pay $16 + $2 = $18.

9 Person A's percentage = 20%

Person B's percentage = 16.67%

Person C's percentage = 23.33%

Person D's percentage = 13.33%

Person E's percentage = 26.67%

Section 4.2. Dividing the Rent

1 You will pay $1,680, while the remaining three roommates will each pay $373.33 (rounded to the nearest cent)

2 Your contribution = $40,000/$150,000 = 4/15

Friend A's ratio = $50,000/ $150,000 = 1/3

Friend B's ratio = $60,000/ $150,000 = 2/5

Calculate each person's contribution based on their income ratio.

Your contribution = (4/15) × $3,500 = $933.33 (rounded to the nearest cent)

Friend A's contribution = (1/3) × $3,500 = $1,166.67 (rounded to the nearest cent)

Friend B's contribution = (2/5) × $3,500 = $1,400

3 You will pay = $900. The remaining rent: $2,400 = $1,500

Malika pays: $1,500 × 0.75 = $1,125

Shinaya pays: $1,500 × 0.25 = $375

4 The friend who stayed only for three days will pay a total of $$337.50. The three people who remain for the entire six days will pay $787.50 each.

5 Rent: You and Ibrahim will each pay = $360

Amjad and Mike will each pay $240

Electricity: You will pay: $75 × 0.32 = $24

Ibrahim, Amjad and Mike will each pay: $17

Total paid by each: You ($384), Ibrahim ($377), Amjad ($257), Mike ($257)

6 Karima pays $960, while you and Amari each pay $720.

7 Daily rate: $2,050/7 = $292.86 (rounded to two decimal places)

Cost per person first three days: $292.86/3 x 3 days = $292.86

Cost per person last four days: $292.86/2 x 4 days = $585.72

Joe should pay approximately: $292.86

You and Mary should each pay approximately: $292.86 + $585.72 = $878.58

8 Your room: (600 ÷ 2,000) × $1,800 = $540

Roommate A's room: (500 ÷ 2,000) × $1,800 = $450

Roommate B's room: (400 ÷ 2,000) × $1,800 = $360

Roommate C's room: (500 ÷ 2,000) × $1,800 = $450

9 Rushabh and Arman will each pay $1,250 per month during the first two months. Isht will not pay any rent since he will not join the lease and move in during the first two months.

10 0.47 × $150 = $70.50

0.19 × $98 = $18.62

Rubin will pay a total of $89.12

11 Julie will only pay $30.

You, Mariam and Fatima will each pay: $60 + $10 = $70.

12 Your room: $80 ÷ 9 = $8.89 (rounded to the nearest cent)

Roommate A's room: $80 ÷ 9 × 2 = $17.78 (rounded to the nearest cent)

Roommate B's room: $80 ÷ 9 × 3 = $26.67 (rounded to the nearest cent)

Roommate C's room: $80 ÷ 9 × 2 = $17.78 (rounded to the nearest cent)

Roommate D's room: $80 ÷ 9 = $8.89 (rounded to the nearest cent)

13 Kumar will pay $30, while you and Ajesh will each pay $45.

14 Your room: $90 ÷ 8 × 2 = $22.50

Roommate A's room: $90 ÷ 8 × 1 = $11.25

Roommate B's room: $90 ÷ 8 × 3 = $33.75

Roommate C's room: $90 ÷ 8 × 2 = $22.50

15 You, Brigitte and Isabelle will each pay ($260 x 8) + $346.67 (rounded to nearest cent) = $2,426.67. Florence will pay $260 × 8 = $2,080.

16 Your room: (400 ÷ 1,200) × $80 = $26.67 (rounded to the nearest cent)

Roommate A's room: (300 ÷ 1,200) × $80 = $20

Roommate B's room: (200 ÷ 1,200) × $80 = $13.33 (rounded to the nearest cent)

Roommate C's room: (300 ÷ 1,200) × $80 = $20

17 You will pay $480 in rent. Your roommates will each pay $240 in rent.

You will pay $70 in utilities. Your two roommates will each pay $35 in utilities.

You will pay a total of $480 + $70 = $550

Both roommates will each pay a total of $240 + $35 = $275.

18 Madonna, Kylie and Kim will each pay approximately $28.13 (rounded to the nearest cent). Chloe will pay approximately $5.63 (rounded to the nearest cent).

Let's Explore

19 a) If one of your roommates doesn't pay their share of the rent or moves out unexpectedly, it can create financial challenges such as:

- You and your other roommate will need to cover the missing portion of the rent, which can strain your budget and disrupt your financial plans (including the 50/30/20 budget rule).
- If you have signed a lease indicating that you are "jointly and severally liable" you could be held legally liable for the full rent amount and not just your individual portion.
- Unpaid rent can result in late fees imposed by the landlord, which can add to the financial burden.
- Financial disagreements can strain your relationship with roommates.

(b) The security deposit is typically held by the landlord to cover any damages beyond normal "wear and tear." If a roommate causes significant damage, it could lead to deductions from the security deposit, affecting the amount, if any, returned at the end of the lease.

- Depending on the lease agreement, roommates might be jointly held responsible for damages. This can lead to disagreements about who is financially accountable for the repair costs.
- Disagreements over damage-related costs can strain relationships among roommates, leading to conflict and a less harmonious living situation.

(c) To ensure a smooth co-living experience with roommates and address potential issues, consider the following steps:

- Establish open lines of communication from the beginning. Discuss expectations for rent payment, bill sharing and responsibilities.
- Build an emergency fund to cover unexpected expenses or roommate situations, such as someone leaving suddenly.
- Consider tenant insurance to protect your belongings and provide liability coverage in case of accidents or damages.
- Discuss and establish how the security deposit will be handled and returned, especially in cases of damage or roommate changes.
- Consider a process for resolving conflicts, whether it's about finances, living arrangements or personal issues.

Unit 5. Taxes

Section 5.1 Sales Tax

1 Total cost = $25 + $1.75 = $26.75

2 Total cost = $800 + $72 = $872

3 Total cost = $65 + $3.90 = $68.90

4 Total cost = $15 + $1.20 = $16.20

5 Total cost = $120 + $12 = $132

6 Total cost = $45.00 + $3.60 = $48.60

7 $85

8 $30

9 $50

10 $9

11 $6.18 (rounded to the nearest cent)

Section 5.2 Tax and Gratuity

1 Total cost = $45 + $3.15 + $7.22 = $55.37

2 Total cost = $35 + $2.80 + $7.00 = $44.80

3 Total cost = $75 + $5.25 + $13.50 = $93.75

4 Total cost = $8 + $0.72 + $1.74 = $10.46

5 Total cost =$50 + $4 + $7.50 = $61.50

6 Total amount: $120 + $7.20 + $26.40 = $153.60

7 (a) Tax 8.93 + tip $16.75 = $25.68

(b) Amount before tax and tip: $111.65

Section 5.3 Income Tax

1 Total Tax Liability = $1,000 + $1,500 + $1,000 = $3,500.

2 Total Tax Liability = $1,000 + $750 = $1,750.

3 Total Tax Liability = $400 + $1,200 + $750 = $2,350.

4 Total Tax Liability = $400 + $200 = $600.

5 Total Tax Liability = $3,000 + $7,500 + $3,000 = $13,500.

6 Total Tax Liability = $2,250.

7 Total Tax Liability = $3,000 + $7,500 + $3,500 = $14,000.

8 Total Tax Liability = $2,000.

9 Total Tax Liability = $1,000 + $3,000 + $1,250 = $5,250.

10 (a) $14,750

(b) $295

11 Total Tax Liability = $1,500 + $2,250 = $3,750.

12 Total Tax Liability = $1,000.

13 Total Tax Liability = $2,500 + $4,500 + $1,000 = $8,000.

14 (a) $42,500

(b) $2,125

Section 5.4 Investment Tax

a. Capital Gains Tax

1 $500 × 0.20 = $100.

2 $2,000 × 0.15 = $300.

3 $50,000 × 0.25 = $12,500.

4 $2,500 × 0.10 = $250.

5 $50,000 × 0.30 = $15,000.

b. Dividend Tax

1 $1,500 × 0.15 = $225.

2 $2,000 × 0.20 = $400.

3 $500 × 0.10 = $50.

4 $5,000 × 0.25 = $1,250.

5 $10,000 × 0.30 = $3,000.

c. Interest Income Tax

1 $500 × 0.10 = $50.

2 $200 × 0.20 = $40.

3 $2,500 × 0.25 = $625.

4 $5,000 × 0.30 = $1,500.

d. Rental Income Tax

1 $14,400 × 0.20 = $2,880.

2 $30,000 × 0.15 = $4,500.

3 (a) $10,400

(b) $12,480

4 (a) $21,000

(b) $27,000

Section 5.5 Property Tax

1 Annual property tax = $250,000 × 0.012 = $3,000

2 Taxable value = $400,000 × (1 - 0.20) = $320,000

Annual property tax = $320,000 × 0.008 = $2,560

3 Taxable value = $180,000 - $2,000 = $178,000

Annual property tax = $178,000 × 0.025 = $4,450

4 Property tax = $300,000 × 0.015 = $4,500

School tax = $300,000 × 0.007 = $2,100

Total annual property tax = $4,500 + $2,100 = $6,600

5 Tax up to $150,000 = $150,000 × 0.01 = $1,500

Tax above $150,000 = ($220,000 - $150,000) × 0.015 = $1,050

Total annual property tax = $1,500 + $1,050 = $2,550

Section 5.6 Inheritance Tax

1 $500,000 × 0.10 = $50,000.

2 $2,000,000 × 0.20 = $400,000.

3 $1,500,000 × 0.15 = $225,000.

4 $800,000 × 0.25 = $200,000.

5 $3,500,000 × 0.30 = $1,050,000.

6 $75,000 + $12,500 = $87,500.

7 $112,500 + $150,000 = $262,500.

8 $2,000,000 × 0.05 = $100,000.

9 $60,000 + $6,000 = $66,000.

10 $400,000 + $150,000 = $550,000.

Section 5.7 Corporate Tax

1 $500,000 × 0.25 = $125,000.

2 $1,200,000 × 0.30 = $360,000.

3 $750,000 × 0.20 = $150,000.

4 $2,500,000 × 0.35 = $875,000.

5 $1,800,000 × 0.28 = $504,000.

6 $400,000 × 0.22 = $88,000.

7 $1,000,000 × 0.32 = $320,000.

8 $3,600,000 × 0.29 = $1,044,000.

9 $550,000 × 0.27 = $148,500.

10 $900,000 × 0.24 = $216,000.

11 Tax deductions normally lower the amount of an individual's taxable income.

($500,000 - $50,000) × 0.25 = $112,500

12 Tax credits are normally subtracted from the taxes owed.

$800,000 × 0.30 = $240,000.

$240,000 - $100,000 = $140,000

13 $1,050,000 × 0.20 = $210,000.

14 AED3,000,000 × 0.12 = AED 360,000

AED 360,000 – AED 39,500 = AED 320,500

Unit 6. Managing Bank Accounts and Savings

1 New balance = $650

2 New balance = $430

3 Mary will have a positive balance of $600.

4 John will have a positive balance of $600.

5 Sarah will have a positive balance of $150.

6 David will have a positive balance of $200.

7 Emily will have a positive balance of $150.

8 Mark will have a zero balance.

9 Emma will have a positive balance of $100.

10 Michael will have a positive balance of $150.

11 Olivia will have a positive balance of $100.

12 Daniel will have a negative balance of $650.

13 Both options result in the same total savings of $240.

14 Saving $2 every day for one year = $730

Saving $14 every week for one year = $728

Saving $2 a day would result in a higher total savings of $730.

15 Saving $5 per day for one year = $1,825

Saving $200 every month for 6 months = $1,200

Saving $5 per day for one year would result in higher savings of $1,825.

16 Saving $1.50 every day for 140 days = $210

Saving $10.00 every week for 140 days = $200

Saving $1.50 a day would result in a higher total savings of $210.

17 Saving $20 every week for 26 weeks = $520

Saving $80 every month for 6 months = $480

Saving $20 every week would result in a higher total savings of $520.

18 Saving $3 every day for 240 days = $720

Saving $21 every week for 8 months = $672

Saving $3 a day would result in a higher total savings of $720.

19 Saving $2 per day for 5 years = $3,650

Saving $14 per week for 5 years = $3,640

Saving $60 per month for 5 years = $3,600

Saving $2 per day would result in the highest total savings of $3,650.

20 Saving $5 per day for 3 years = $5,475

Saving $35 per week for 3 years = $5,460

Saving $150 per month for 3 years = $5,400

Saving $5 per day would result in the highest total savings of $5,475.

21 Saving $3 per day for 8 years = $8,760

Saving $21 per week for 8 years = $8,736

Saving $90 per month for 8 years = $8,640

Saving $3 per day would result in the highest total savings of $8,760.

22 Saving $1 per day for 2 years = $730

Saving $7 per week for 2 years = $728

Saving $30 per month for 2 years = $720

Saving $1 per day for 2 years would result in the highest total savings of $730.

23 Saving $2 per day for 4 years = $2,920

Saving $14 per week for 4 years = $2,912

Saving $60 per month for 4 years = $2,880

Saving $2 per day would result in the highest total savings of $2,920.

24 Saving $3 per day for 3 years = $3,285

Saving $21 per week for 3 years = $3,276

Saving $90 per month for 3 years = $3,240

Saving $3 per day for 3 years would result in the highest total savings of $3,285.

25 Saving $2 per day for 3 years = $2,190

Saving $10 per week for 3 years = $1,560

Saving $40 per month for 3 years = $1,440

Saving $2 per day would result in the highest total savings of $2,190.

26 Saving $3 per day for 5 years = $5,475

Saving $20 per week for 5 years = $5,200

Saving $80 per month for 5 years = $4,800

Saving $3 per day would result in the highest total savings of $5,475.

27 Saving $1 per day for 4 years = $1,460

Saving $7 per week for 4 years = $1,456

Saving $30 per month for 4 years = $1,440

Saving $1 per day would result in the highest total savings of $1,460.



28 Saving $1.50 per day for 10 years = $5,475

Saving $5 per week for 10 years = $2,600

Saving $40 per month for 10 years = $4,800

Saving $1.50 per day would result in the highest total savings of $5,475.

29 Saving $3 per day for 10 years = $10,950

Saving $15 per week for 10 years = $7,800

Saving $80 per month for 10 years = $9,600

Saving $3 per day would result in the highest total savings of $10,950.

30 Saving $2 per day for 10 years = $7,300

Saving $10 per week for 10 years = $5,200

Saving $50 per month for 10 years = $6,000

Saving $2 per day would result in the highest total savings of $7,300.

31 Saving $3 per day for 10 years = $10,950

Saving $20 per week for 10 years = $10,400

Saving $100 per month for 10 years = $12,000

Saving $100 per month would result in the highest total savings of $12,000.

32 Saving $2.50 per day for 10 years = $9,125

Saving $15 per week for 10 years = $7,800

Saving $60 per month for 10 years = $7,200

Saving $2.50 per day would result in the highest total savings of $9,125.

33 Saving $5 per day for 10 years = $18,250

Saving $30 per week for 10 years = $15,600

Saving $200 per month for 10 years = $24,000

Saving $200 per month would result in the highest total savings of $24,000.

Unit 7. Interest

Section 7.1 Simple Interest

1 $2,500 × 0.08 × 3 = $600

2 $1,000 × 0.05 × 2 = $100

3 $3,000 × 0.10 × 1.5 = $450

4 $5,000 × 0.06 × 4 = $1,200

5 $800 × 0.075 × 2 = $120

6 $2,500 × 0.04 × 3 = $300

7 $1,200 × 0.09 × 2.5 = $270

8 $4,000 × 0.055 × 5 = $1,100

9 $2,500 × 0.06 × 1.5 = $225

10 $3,000 × 0.035 × 4 = $420

11 $4,500 × 0.0725 × 3 = $978.75

12 $6,000 × 0.0475 × 2.5 = $712.50

13 $1,000 × 0.065 × 1 = $65

14 $5,000 × 0.0225 × 3.5 = $393.75

15 $1,500 × 0.0875 ×2 = $262.50

16 $2,000 × 0.0325 × 4.5 = $292.50

17 $2,200 × 0.055 × 3 = $363

18 $4,500 × 0.04 × 2.5 = $450

19 $3,800 × 0.0625 × 1.5 = $356.25

20 $5,500 × 0.045 × 5 = $1,237.50

21 Interest: $500 × 0.5 × 3 = $75

Total savings after 3 years: $500 + ($25 × 3) = $575

22 Interest: $200 × 0.4 × 2= $16

Total savings after 2 years: $200 + $16 = $216

23 Interest: $1,500 × 0.025 × 4 = $150

Total savings after 4 years: $1,500 + $150 = $1,650

Section 7.2 Compound Interest

(Use the compound interest formula to solve the questions in this section)

1 Approximately $788.13

2 Approximately $492.36

3 Approximately $1,264.93

4 Approximately $563.58

5 Approximately $941.28

6 Approximately $1,637.66

7 Approximately $4,830.60

8 Approximately $1,351.33

9 Approximately $2,039.38

10 Approximately $1,399.30

11 Approximately $11,897.60

12 Approximately $13,172.50

13 Approximately $16,192.75

14 Approximately $18,692.73

15 Approximately $3,049.22

16 Approximately $3,204.43

17 Approximately $3,438.65

18 Approximately $30,783.67

19 Approximately $6,245.91

20 Approximately $5,368.46



Section 7.3 Interest on Savings (Simple and Compound)

1 Principal + (Principal × Interest Rate x Time)

Total savings = $500 + ($500 × 0.5 × 3) = $575

2 Future Value = $1,000 × $(1 + 0.03/12)^{(12*5)}$

Future Value = $1,000 × $(1.0025)^{(60)}$

Future Value = Approximately $1,161.62

3 Principal + Simple Interest: $200 + ($200 × 0.04 × 2) = $216

Total savings = $216

4 Balance: $1,500 + ($37.50 × 4) = $1,650

5 Total savings: $300 + $18 = $318

6 Total savings: $2,000 × $(1+0.045/2)^{(2*3)}$

$2,000 × $(1.0225)^6$

Total savings: Approximately $2,285.65

7 Total savings: $400 + ($8 × 5) = $440

8 AED 3,500 x $(1+0.035/12)^{(12*2)}$

= AED 3,500 x $(1+ 0.00291667)^{24}$

Total savings = Approximately AED 3,753.40

9 Total savings: $600 + ($600 x 0.015 × 4) = $636

10 Total savings: GBP 4,000 × $(1 + 0.02/4)^{(4*3)}$

GBP 4,000 × $(1+0.005)^{12}$

Total savings = Approximately GBP 4,246.71

11 Total savings: 500 EUR + (20 EUR × 5) = 600 EUR

12 Total savings: JOD 1,200 × $(1+ 0.035/4)^{(4*2)}$

JOD 1,200 × $(1+ 0.00875)^8$

Total savings = Approximately JOD 1,286.62

Unit 8. Investing

Section 8.1 Return on Investments

1 50%
2 25%
3 25%
4 33.33%
5 20%
6 20%
7 30%
8 20%
9 30%
10 20%
11 20%
12 25%
13 25%
14 20%
15 20%
16 20%
17 25%
18 30%
19 30%
20 20%
21 -10%
22 - 15%
23 -25%
24 -40%
25 -40%
26 -20%
27 -20%
28 -20%
29 -20%
30 -40%

Section 8.2 Compounding Investments

1 Approximately $6,230.91
2 Approximately $12,314.39
3 Approximately $2,827.46
4 Approximately $1,565.68
5 Approximately $8,689.88

6 (a) $1,200,000

(b) $1,210,000

(c) $1,215,506.25

(d) $1,219,391.08

7 FV of Maryam's investment = $5,000 $(1+0.00583333)^{24}$

$5,000 (1.149805926)

$5,749.03

FV of Josh's investment =$5,000 × (1+ 0.07)^2

FV = $5,724.50

8 (a) Year 1: $1,000 + $60 = $1,060

(b) Year 2: $1,060 + $63.60 = $1,123.60

Let's Explore

9 (a) (i) The rule of 72: number of years × interest rate = 72

Years to double = 72/4 = 18

(i) Years to double = 72/10 = 7.2

(b) (i) Interest rate: 72/5 = 14.4%

(ii) Interest rate: 72/10 = 7.2%

(iii) 72/15 = 4.8%

Section 8.3 Cryptocurrency

1 Total Cost = $50,000

Transaction Fee for Buying = $50,000 × 2% = $1,000

Total Selling Price = $75,000

Transaction Fee for Selling = $75,000 × 2% = $1,500

Profit or Loss = $75,000 - $50,000 - $1,000 - $1,500 = $22,500

Therefore, Bob's total profit after considering the transaction fees is $22,500.

2 Approximately $5,832

3 Total Mining Rewards = 365,000 coins

Percentage = (365,000 coins/10,000,000 coins) x 100

Percentage = 3.65%

Therefore, the mining rewards in the first year represent 3.65% of the total supply.

4 Percentage Increase = ((Final Investment Value - Initial Investment)/Initial Investment) × 100

Percentage Increase = (($1.20 - $0.50)/$0.50) × 100

Therefore, Sarah's investment increased by 140%.

5 $0.40 – $0.20 = $0.20 per unit.

50 units × $0.20 = $10

Therefore, Jackson profited $10 from selling 50% of his cryptocurrency holdings.

6 Percentage Loss = ((Initial Investment Value – Final Investment Value)/Initial Investment Value) × 100

Percentage Loss = (($1.00 - $0.80) / $1.00) × 100

Therefore, Emma incurred a loss of 20% on her investment.

7 Final Investment Value = Initial Investment + Return on Investment

Final Investment Value = $5,000 + $750

Therefore, the final investment value after one year is $5,750.

8 $3.75/unit × 43 units = $161.25

Therefore, Lily received a total amount of $161.25 from selling 43 units of her cryptocurrency holdings.

9 $3,000 × $(1 + 0.10)^6$

$5,314.68

10 $3,000 × $(1 +0.10/12)^6$

$3,153.16

Unit 9. Debt Management

Section 9. 1 Credit Cards

1 (a) Daily interest rate: 0.17/365 = 0.00046575 or 0.046575%

(b) $10,000 + (0.00046575 × $10,000) = $10,004.66

2 Daily interest rate: 0.16/365 = 0.00043836

$1,200 × 0.00043836 = $0.5260274 (rounded to $0.53)

$0.53 × 30 days = $15.90

Interest charged for billing cycle: Approximately $15.90

3 $3,500/$200 = 17.5 months.

4 $6,000 x 0.03 = $180.

5 $4,000/36 = $111.11 (rounded to two decimal places). Daniel should make a monthly payment of approximately $111.11.

6 $2,800/12 = $233.33 (rounded to two decimal places). Sophia should make a monthly payment of approximately $233.33.

7 Interest = Principal × Interest Rate × Time

Interest = $200 × 0.18 × (1/12) = $3.00

8 Interest = Remaining balance × Interest Rate × Time

$400 × 0.20 × (1/12) = $400 × 0.20/12 = $400 × 0.0167 = $6.67

9 $1,600 + $631 - $419 = $1,812

Minimum payment: $1,812 × 0.08 = $144.96

10 $3,150 × 0.195 = $614.25

Monthly interest: 614.25/12 = $51.19

Total balance: $3,150 + $51.19 = $$3,201.19

Minimum monthly payment: 0.02 × $3,201.19 = $64.02

11 Convert the annual interest rate to a monthly rate: 0.18/12 = 0.015 per month.

Interest = Outstanding Balance × Monthly Interest = $500 × 0.015 = $7.50.

12 Interest: 0.432/12 × ($305.62 - $125 +$290)

=0.036 × $470.62 = $16.94

13 Convert the annual interest rate to a monthly rate: 0.18/12 = 0.015 per month.

Interest = Outstanding Balance x Monthly Interest Rate x Number of Months = $800 × 0.015 × 2 = $24.

14 (a) Interest = Outstanding Balance × Monthly Interest Rate × Number of Months

= $2,500 x 0.0167 × 2 = Approximately $83.50.

(b) Principal + Interest + Penalty

Penalty: $2,583.50 × 0.01 = $25.84

Total: $2,500 + $83.50 + $25.84 = Approximately $2,609.34

15 Minimum payment: $2,500 × 0.03 = $75

16 Convert the annual interest rate to a monthly rate: 0.24/12 = 0.02 per month.

Interest = Outstanding Balance x Monthly Interest Rate x Number of Months = $3,000 × 0.02 × 3 = $180.

17 Convert the annual interest rate to a daily rate: 0.16/365 = 0.00043836

Interest = Outstanding Balance × Daily Interest Rate × Number of Days

$1,500 × 0.00043836 × 45 days = $29.59

18 Closing balance. $$2,650 + $277 - $30 = $2,897

Minimum monthly payment: $2,897 × 0.21 = $608.37

19 Closing balance: $3,560 - $300 = $3,260

Minimum monthly payment: $3,260 × 0.02 = $65.20

20 0.065/365 = Approximately 0.018%

21 $3,100 × 0.18/365 × 40 = $61.15

22 0.14/365 = 0.00038356

Interest = Outstanding Balance × Daily Interest Rate

= $2,000 × 0.00038356 = Approximately $0.77

23 0.21/12 = 0.0175 per month.

Interest = Outstanding Balance × Monthly Interest Rate × Number of Months = $3,000 × 0.0175 × 1 = $52.50

Amount owed after one month: $3,000 + $52.50 = $3,052.50

24 0.18/365 = 0.00049315

Interest = Outstanding Balance × Daily Interest Rate × Number of Days = $1,200 × 0.00049315 × 50 days = $29.59

Amount owed after 50 days: $1,200 + $29.59 = $1,229.59

25 (a) June minimum payment: 0.09 × $622 = $55.98.

(b) Interest: 0.42/12 × ($622-$55.98) = 0.035 × $566.02 = $19.81

(c) New balance: $622 - $55.98 + $19.81 = $585.83

(d) July minimum payment: 0.09 × $585.83 = $52.72

26 (Answers may vary slightly due to rounding of numbers).

Interest = 0.44/12 × ($340 - $110 + $1,215) = 0.0367 × $1,445 = $53.03

New Balance: $340 - $110 + $1,215 + $53.03 = $1,498.03

	Previous Balance	Payments	Purchases	Interest	New Balance
Month 1	$340	$110	$1,215	$53.03	$1,498.03

(Answers may vary slightly due to rounding of numbers).

27 (Answers may vary slightly due to rounding of numbers).

Interest = 0.44/12 × ($1,498.03 - $85 + $450) = 0.0367 × $1,863.03 = $68.37

New Balance: $1,498.03 - $85 + $450 + $68.37 = $1,931.40

	Previous Balance	Payments	Purchases	Interest	New Balance
Month 1	$340	$110	$1,215	$53.03	$1,498.03
Month 2	$1,498.03	$85	$450	$68.37	$1,931.40

Section 9.2 Loans

a) Simple Interest Loans

1 (a) the total amount to be repaid is $5,450

(b) the monthly payment is $227.08

2 Interest = $10,000 × 0.06 x 3.5 = $2,100

Total Amount = $10,000 + $2,100 = $12,100

Monthly Payment = $12,100/(3.5 × 12) = $288.10

(a) the total interest paid is $2,100

(b) the monthly payment is $288.10

3 Interest = $8,500 x 0.0375 × 4 = $1,275

Total Amount = $8,500 + $1,275 = $9,775

Monthly Payment = $9,775/(4 × 12) = $203.65

(a) the total amount to be repaid is $9,775

(b) the monthly payment is $203.65

4 Interest = $15,000 × 0.0525 × 2.5 = $1,968.75

Total Amount = Principal + Interest

(a) Total Amount = 15,000 + $1,968.75 = $16,968.75

(b) Monthly Payment = $16,968.75 /(2.5 × 12) = $565.63

5 Interest = $12,500 × 0.04 × 6 = $3,000

(a) Total Amount = $12,500 + $3,000 = $15,500

(b) Monthly Payment = $15,500/(6 × 12) = $215.28

6 Interest = $20,000 × 0.065 × 1.5 = $1,950

(a) Total Amount = $20,000 + $1,950 = $21,950

(b) Monthly Payment = $21,950/(1.5 × 12) = $1,219.44

7 Interest = $6,000 × 0.0225 × 3 = $405

(a) Total Amount = $6,000 + $405 = $6,405

(b) Monthly Payment = $6,405/(3 × 12) = $177.92

8 Interest = $9,500 × 0.0475 × 2 = $902.50

(a) Total Amount = $9,500 + $902.50 = $10,402.50

(b) Monthly Payment = $10,402.50/(2 × 12) = $433.44

9 Interest = $25,000 × 0.07 × 5 = $8,750

(a) Total Amount = $25,000 + $8,750 = $33,750

(b) Monthly Payment = $33,750/(5 × 12) = $562.50

10 Interest = $7,500 × 0.035 × 4.5 = $1,181.25

(a) Total Amount = $7,500 + $1,181.25 = $8,681.25

(b) Monthly Payment = $8,681.25/(4.5 × 12) = $160.76

11 Interest = $18,000 × 0.05 × 3 = $2,700

(a) Total Amount = $18,000 + $2,700 = $20,700

(b) Monthly Payment = $20,700/(3 × 12) = $575

12 Interest = $10,500 × 0.0425 × 2.75 = $1,227.19

(a) Total Amount = $10,500 + $1,227.19 = $11,727.19

(b) Monthly Payment = $11,727.19/(2.75 × 12) = $355.37

13 Interest = $14,000 × 0.039 × 4.25 = $2,320.50

(a) Total Amount = $14,000 + $2,320.50 = $16,320.50

(b) Monthly Payment = $16,320.50/(4.25 × 12) = $320

14 Interest = $8,000 × 0.045 × 3.5 = $1,260

(a) Total Amount = $8,000 + $1,260 = $9,260

(b) Monthly Payment = $9,260/(3.5 x 12) = $220.48

15 Interest = $11,200 × 0.0575 × 2.25 = $1,449

(a) Total Amount = $11,200 + $1,449 = $12,649

(b) Monthly Payment = $12,649/(2.25 x 12) = $468.48

b) Compound Interest Loans

1 $10,000 x $(1 + 0.06/12)^{42}$ = $12,330.33

(a) Total interest paid = $2,330.33

(b) Monthly payment = $293.58

2 $8,500 x $(1 + 0.0375/12)^{48}$ = $9,873.28

(a) Total interest paid = $1,373.28

(b) Monthly payment = $205.69

3 $15,000 x $(1 + 0.0525/12)^{30}$ = $17,098.90

(a) Total interest paid = $2,098.90

(b) Monthly Payment =$569.96

4 $12,500 x $(1 + 0.04/12)^{72}$ = $15,884.27

(a) Total interest paid = $3,384.27

(b) Monthly Payment = $220.61

5 $20,000 x $(1+ 0.065/12)^{18}$ = $22,042.43

(a) Total interest paid = $2,042.43

(b) Monthly Payment = $1,224.58

6 $\$6{,}000 \times (1 + 0.0225/12)^{36} = \$6{,}418.58$

(a) Total interest paid = $418.58

(b) Monthly Payment = $178.29

7 $\$9{,}500 \times (1 + 0.0475/12)^{24} = \$10{,}444.80$

(a) Total interest paid = $944.80

(b) Monthly Payment = $435.20

8 $\$25{,}000 \times (1 + 0.07/12)^{60} = \$35{,}440.63$

(a) Total interest paid = $10,440.63

(b) Monthly Payment = $590.68

9 $\$7{,}500 \times (1 + 0.035/12)^{54} = \$8{,}777.34$

(a) Total interest paid = $1,277.34

(b) Monthly Payment = $162.54

10 $\$18{,}000 \times (1 + 0.05/12)^{36} = \$20{,}906.50$

(a) Total interest paid = $2,906.50

(b) Monthly Payment = $580.74

11 $\$10{,}500 \times (1 + 0.0425/12)^{33} = \$11{,}799.34$

(a) Total interest paid = $1,299.34

(b) Monthly Payment = $357.56

Let's Explore

12 (a) Total cost of borrowing on simple interest loan:

$\$10{,}000 \times 0.05 \times 5 = \$2{,}500$

Total cost of borrowing = $10,000 + $2,500 = $12,500

(b) Total cost of borrowing on compound interest loan:

$\$10{,}000 \times (1+0.05/12)^{(12*5)}$

Total cost: $12,833.59

(c) In this scenario, the total cost of borrowing in option (b) is higher due to the compounding interest being charged on the borrowed amount.

Other factors to consider when choosing between loan options:

- Compare interest rates to determine overall cost.
- Loans with higher compounding frequencies (ie. monthly) tend to accumulate more interest.
- Calculate the total cost of borrowing or total amount you will have to repay for each loan option.
- Consider the term length. Longer terms might result in lower monthly payments but higher total interest paid.
- Calculate the monthly payment for each loan option to ensure it fits your budget.
- Check if there are any prepayment penalties or flexibility to pay off the loan early.
- Consider your current financial status and stability before committing to any loan.

c) Amortized Loan Formula

(Apply the amortization formula to calculate monthly payments. See example in Question section).

1 $466.08

2 $472.00

3 $449.56

4 $442.88

5 $522.44

6 $432.36

7 $465.95

8 $478.88

9 $429.09

10 $736.73

11 $431.04

12 $426.35

13 $425.20

14 $384.92

15 $389.12

16 $342.52

17 $315.79

18 $291.39

19 $351.00

20 (a) $366.28

(b) $366.28 x 36 payments = $13,186.08

Total interest paid: $13,186.08 - $12,500 = $686.08

21 (a) $204.02

(b) Cost of borrowing: $204.02 × 48 payments = $9,792.96

22 (a) $363.41

(b) $363.41 × 72 payments = $26,165.52

Total interest paid: $26,164.52 - $22,500 = $3665.52

(i) Amortization Schedule

To fill out each row of an amortization table/schedule, you need to follow these steps:

1 In the first row, insert "0" in the Payment Number column and the initial amount loaned in the Remaining Principal/Balance" column.

2 Calculate the fixed monthly payment using the amortization formula and insert the monthly payment amount in the Amount of Payment column in the 2nd row.

3 Calculate the Interest Paid by multiplying the periodic interest by the remaining principal (from the previous row).

4 Calculate the Principal Paid by subtracting the Interest Paid from the Payment Amount.

5 Subtract the Principal from the Remaining Principal (in the previous row).

6 Continue the sequence until you reach the last row and the Remaining Principal is zero. (Since amounts may be rounded, the final amount may be +/- by a few cents).

Monthly Payment Amount

Monthly Payment = $P \times (r(1+r)^n) / ((1+r)^n - 1)$

Monthly Payment = $100{,}000 \times (0.00149167(1+0.00149167)^{12})/((1+0.00149167)^{12} - 1)$

Monthly Payment = $100{,}000 \times ((0.00149167) \times (1.018047628))/0.18047628$

Monthly Payment = $8,414.35. (rounded to two decimal places)

Interest Payment

Interest = Remaining Principal x Periodic Interest Rate

First interest payment: $100,000 × 0.0179/12 = $149.17

Second interest payment: $91,734 × 0.0179/12 = $136.84

Principal Paid

Payment Amount - Interest Paid

First Principal Paid amount: $8414.35 - $149.17 = $8265.18

Second Principal Paid amount: $8414.35 - 136.84 = $8,277.51



Remaining Principal

Subtract the Principal Paid from Remaining Principal

For Remaining Principal in row 2: $100,000 - $8265.18 = $91,734.82

For Remaining Principal in row 3: $91,734.82 - 8277.71 = $83,457.31

Payment Number	Payment Amount	Interest Paid	Principal Paid	Remaining Principal
0				100,000
1	8,414.35	149.17	8265.18	91,734.82
2	8,414.35	136.84	8277.51	83,457.31
3	8,414.35	124.49	8289.86	75,167.45
4	8,414.35	112.13	8302.22	66,865.23
5	8,414.35	99.74	8314.61	58,550.62
6	8,414.35	87.34	8327.01	50,223.61
7	8414.35	74.92	8339.43	41,884.18
8	8414.35	62.48	8351.87	33,532.31
9	8414.35	50.02	8364.33	25,167.98
10	8414.35	37.54	8376.81	16,791.17
11	8414.35	25.05	8389.30	8,401.87
12	8414.35	12.53	8401.82	0.05

Unit 10. Mortgages

1 $1,667.50

2 (a) $1,667.50 × 300 payments = $500,250

(b) $500,250 - $300,000 = $200,250

3 20%

4 $320,000

5 $50,000

6 20%

7 360

8 $7,381.00

9 $400,000 × 0.035 = $14,000

10 ($150,000 × 0.0525)/12 = $656.25

11 $2,588.91

12 Monthly = $1,157.79

Total payments for first year: $1,157.79 × 12 = $13,893.48

13 $2,639.82

14 $3,761.39

15 ($350,000 × 0.07)/12 = $,2041.67

16 Monthly: $2,147.29

$2,147.29 × 360 payments = $773,024.40

Total interest: $773,024.40 - $400,000 = $373,024.40

17 Mortgage amount = $175,000 - $26,250 = $148,750

Monthly payment: $1,148.08

Total cost: $1,148.08 × 300 payments = $344,424

18 Monthly property tax: $2,356/12 = $196.33

Monthly mortgage + property tax: $965.23 + $196.33 = $1,161.56

19 $1,900,000 × 0.07 = $133,000

Unit 11. Purchasing Power

Section 11.1 Exponential Decay

1 $664.83

2 $f(x) = \$1{,}000 \times (1 - 0.06)^9$

$f(x) = \$1{,}000 \times 0.5729948022$

$f(x) \approx \$572.99$

3 $f(x) = \$500 \times (1 - 0.015)^8$

$f(x) = \$500 \times 0.8861145015$

$f(x) \approx \$443.06$

4 $f(x) = \$1{,}000(1 - 0.05)^{10}$

$f(x) = \$1{,}000 \times 0.5987369392$

$f(x) \approx \$598.74$

5 $f(x) = \$10{,}000(1 - 0.045)^{15}$

$f(x) = \$10{,}000(0.5012456005)^{15}$

$f(x) = \$5{,}012.46$

6 (a) $f(x) = \$100 \times (1 - 0.05)^1$

$f(x) = \$95$. Therefore, you can purchase 9 bottles of shampoo.

(b) $f(x) = \$100 \times (1 - 0.05)^2$

$f(x) = \$90.25$. Therefore, you can purchase 9 bottles of shampoo.

(c) $f(x) = \$100 \times (1 - 0.05)^3$

$f(x) = \$85.74$. Therefore, you can buy 8 bottles of shampoo.

(d) $f(x) = \$100 \times (1 - 0.05)^8$

$f(x) = \$66.34$. Therefore, you can buy 6 bottles of shampoo.

Section 11.2 Exponential Growth

1 $f(x) = \$5{,}000\,(1 + 0.07)^{15}$

$f(x) = \$13{,}795.16$

2 $f(x) = 200{,}000 \times (1 + 0.05)^{10}$

$f(x) = 325{,}778.93$ rupees

3 $f(x) = 1{,}500 \times (1 + 0.02)^{16}$

$f(x) = 2{,}059.18$ Euros

4 $f(x) = \$1{,}000 \times (1 + 0.05)^{10}$

$f(x) = \$1{,}000 \times (1.628894627)$

$f(x) = \$1{,}628.89$

5 (a) $f(x) = \$100 \times (1 + 0.10)^{1}$

$f(x) = \$110$. You can purchase 11 bottles of shampoo.

(b) $f(x) = \$100 \times (1 + 0.10)^{2}$

$f(x) = \$121$. You can purchase 12 bottles of shampoo.

(c) $f(x) = \$100 \times (1 + 0.10)^{3}$

$f(x) = \$133.10$. You can purchase 13 bottles of shampoo.

(d) $f(x) = \$100 \times (1 + 0.10)^{8}$

$f(x) = \$214.36$. You can purchase 21 bottles of shampoo.

Unit 12. Capital Appreciation and Capital Depreciation

Section 12.1 Capital Appreciation

1 ($15/$50) × 100% = 30%.

2 $50,000/$200,000) × 100% = 25%.

3 ($5,000/$10,000) × 100% = 50%.

4 ($1,300/$2,500) × 100% = 52%.

5 ($10/$20) × 100% = 50%.

6 ($2,500/$5,000) × 100% = 50%.

7 ($15,000/$30,000) × 100% = 50%.

8 ($1,500/$1,000) × 100% = 150%.

9 ($30,000/$50,000) × 100% = 60%.

10 ($15/$10) × 100% = 150%.

Section 12.2 Capital Depreciation

1 $1,600 per year

2 $25,000/10 = $2,500 per year

The annual straight-line depreciation for the car is $2,500.

3 $1,500/3 = $500 per year

The annual straight-line depreciation for the computer is $500.

4 $450,000/40 = $11,250 per year

The annual straight-line depreciation for the building is $11,250.

5 $100,000/5 = $20,000 per year

The annual straight-line depreciation for the machinery is $20,000.

6 $75,000/8 = $9,375 per year

The annual straight-line depreciation for the equipment is $9,375.

7 Percentage depreciation: ($450,000 - $340,000)/$450,000 x 100 = 24.44%

8 (a) Annual depreciation expense: ($26,700 - $2,500)/5 = $4,840

(b) Capital depreciation percentage: ($26,700 - $2,500)/$26,700 x 100 = 90.64%

(c) Annual rate of depreciation: 90.64%/5 = 18.13%

or: $4,840/$26,700 x 100 = 18.13%

9 ($1,500 - $200)/4 = $325

Book value after 3 years: $1,500 – ($325 x 3) = $525

10 ($458 - $80)/5 = $75.60

Book value after 2 years: $458 – ($75.60 x 2) = $306.80

11 (a) ($80,000 - $5,000)/10 = $7,500

Book value end of year 1 using straight-line: $72,500

Book value end of year 2 using straight-line: $65,000

(b) Year 1 Depreciation: $80,000 × 0.20 + $16,000

Book value end of year 1 using declining balance: $80,000 - $16,000 = $64,000

Year 2 Depreciation: $64,000 × 0.20 = $12,800

Book value end of year 2 using declining balance: $64,000 - $12,800 = $51,200

12 Step 1: Sum of the years' digits for the useful life of the truck
= 6+5+4+3+2+1 = 21 Or 6 × (6 + 1)/2 = 21

Step 2: Calculate the fraction of the sum of the years' digits for each year

Depreciation = (Years remaining/Sum of the years' digits) × (Initial value – Salvage value)

Year 1 Depreciation = (6/21) × ($50,000 - $0) = $14,285.71 (rounded to nearest cent)

Year 2 Depreciation = (5/21) × ($50,000 - $0) = $11,904.76 (rounded to the nearest cent)

Year 3 Depreciation = (4/21) × ($50,000 - $0) = $9,523.81 (rounded to the nearest cent)

Unit 13 Insurance

1 Premium: ($20,000 × 0.05) = $1,000. (The deductible is not included in the premium; it is an amount that is paid out of pocket before the insurance coverage applies).

2 Premium: $300,000 × 0.003 = $900.

3 Multiply the premium rate by the number of people covered by the policy: Monthly Premium = $200 × 4 = $800.

4 Premium: ($100,000/1,000) × $10 = $100 × $10 = $1,000.

5 Premium: $1,500,000 × 0.02 = $30,000.

6 Total Premium: ($20 × 3) × 2 = $120.

7 Annual Premium: $0.10 × 10,000 = $1,000.

8 Monthly Premium: ($50 × 2) + $70 = $100 + $70 = $170.

9 Monthly Premium: ($200,000/100) × $1.50 = $2,000 × $1.50 = $3,000.

10 Annual Premium: $8,000 × 0.08 = $640.

11 Annual Premium: $50,000 × 0.002 = $100.

12 Annual Premium: ($500,000 / 1,000) × $20 = $500 × $20 = $10,000.

13 Annual Premium: $2,000,000 × 0.015 = $30,000.

14 Total Premium: ($10 × 5) × 7 = $350.

15 Annual Premium: $0.25 × 20,000 = $5,000.

16 Monthly Premium: ($40 × 3) + ($60 × 2) = $120 + $120 = $240.

17 Monthly Premium: ($300,000/100) × $2 = $3,000 × $2 = $6,000.

18 Annual Premium: $5,000 × 0.10 = $500.

19 Annual Premium: $400,000 × 0.0025 = $1,000.

20 Annual Premium = ($250,000/1,000) × $15 = $250 × $15 = $3,750.

Unit 14. Retirement Planning

Section 14.1 Saving Early and The Power of Compounding

1 $300 × ((1 + .005)^{420} - 1)/0.005

$300 x (8.123551494 - 1)/0.005

$300 x 7.123551494/0.005

$300 x 1424.71

FV = $427,413.09

2 $300 x ((1+0.005)^^{180} -1)/0.005

$300 x (2.454093562 - 1)/0.005

FV = $87,245.61

3 FV = AED 100 x ((1+0.00416667)^{564} - 1)/0.00416667

FV = AED 226,428.31

4 FV = AED 100 x ((1 + 0.00416667)^{240} - 1)/0.00416667

FV = AED 41,103.39

Section 14.2 Estimate Retirement Needs - the "70 - 80% rule"

1 $60,000 × 0.75 = $45,000 per year

2 GBP 80,000 × 0.70 = GBP 56,000 per year

3 100,000 Euros × 0.76 = 76,000 Euros

4 500,000 Rupees × 0.80 = 400,000 Rupees

Section 15.2 Financial Documents and Business Expenses

Cost of Goods Sold (COGS):

Use the following formula to calculate the COGS.

Beginning inventory + purchases of inventory – ending inventory = COGS

1 To calculate COGS, we need to subtract the ending inventory from the sum of beginning inventory and purchases:

COGS = Beginning Inventory + Purchases - Ending Inventory

COGS = $10,000 + $5,000 - $8,000

COGS = $7,000

Therefore, the Cost of Goods Sold (COGS) for the month amounts to $7,000.

2 COGS = Beginning Inventory + Purchases - Ending Inventory

COGS = $40,000 + $20,000 - $15,000 COGS = $45,000

3 COGS = Beginning Raw Material Inventory + Raw Material Purchases - Ending Raw Material Inventory

COGS = $30,000 + $50,000 - $25,000 COGS = $55,000

4 COGS = Beginning Inventory + Purchases - Ending Inventory

COGS = $15,000 + $8,000 - $6,000 COGS = $17,000

5 COGS = Beginning Inventory + Purchases - Ending Inventory

COGS = $60,000 + $25,000 - $40,000 COGS = $45,000

6 COGS = Beginning Inventory + Purchases - Ending Inventory

COGS = $10,000 + $5,000 - $8,000 COGS = $7,000

7 COGS = Beginning Inventory + Purchases - Ending Inventory

COGS = $10,000 + $20,000 - $8,000 COGS = $22,000

Therefore, the cost of goods sold for the bookstore is $22,000.

8 COGS = Beginning Inventory + Purchases - Ending Inventory
COGS = $50,000 + $30,000 - $40,000 COGS = $40,000

Therefore, the cost of goods sold for the grocery store is $40,000.

Gross Profit Margin

1 Gross Profit Margin = (($800,000 - $600,000) / $800,000) × 100

Gross Profit Margin = ($200,000 / $800,000) × 100

Gross Profit Margin = 0.25 × 100

Gross Profit Margin = 25%

2 Gross Profit Margin = (($1,200,000 - $800,000)/$1,200,000) × 100

Gross Profit Margin = ($400,000/$1,200,000) × 100

Gross Profit Margin = 0.3333 × 100

Gross Profit Margin = 33.33%

3 Gross Profit Margin = (($400,000 - $200,000)/$400,000) × 100

Gross Profit Margin = ($200,000/$400,000) × 100

Gross Profit Margin = 0.5 100

Gross Profit Margin = 50%

4 Gross Profit Margin = (($2,000,000 - $1,200,000)/$2,000,000) × 100

Gross Profit Margin = ($800,000/$2,000,000) × 100

Gross Profit Margin = 0.4 × 100 Gross Profit Margin = 40%

5 Gross Profit Margin = (($300,000 - $100,000)/$300,000) × 100

Gross Profit Margin = ($200,000/$300,000) × 100

Gross Profit Margin = 0.6667 × 100

Gross Profit Margin = 66.67%

6 Gross Profit Margin = (($1,000,000 - $700,000)/$1,000,000) × 100

Gross Profit Margin = ($300,000/$1,000,000) × 100

Gross Profit Margin = 0.3 × 100

Gross Profit Margin = 30%

Net Income

1 Net Income = Total Revenues - Cost of Goods Sold - Operating Expenses

Net Income = $50,000 - $25,000 - $12,000

Net Income = $13,000

2 Net Income = Total Sales - Cost of Services - Operating Expenses Net Income = $100,000 - $35,000 - $20,000

Net Income = $45,000

3 Net Income = Total Revenue - Cost of Goods Manufactured - Operating Expenses + Non-Operating Income

Net Income = $500,000 - $250,000 - $150,000 + $25,000

Net Income = $125,000

4 Net Income = Total Sales - Cost of Food and Beverages Sold - Operating Expenses - Non-Operating Expense

Net Income = $200,000 - $80,000 - $60,000 - $5,000

Net Income = $55,000

5 Net Income = Total Revenue - Cost of Software Development - Operating Expenses + Interest Income

Net Income = $1,000,000 - $500,000 - $300,000 + $10,000

Net Income = $210,000

6 Net Income = Revenue - Cost of Goods Sold - Expenses

Net Income = $500,000 - $300,000 - $150,000

Net Income = $50,000

7 Net Income = Revenue - Cost of Goods Sold - Expenses

Net Income = $800,000 - $600,000 - $200,000

Net Income = $0

8 Net Income = Revenue - Cost of Goods Sold - Expenses

Net Income = $1,200,000 - $0 - $800,000

Net Income = $400,000

9 Net Income = Revenue - Cost of Goods Sold - Expenses

Net Income = $400,000 - $150,000 - $200,000

Net Income = $50,000

10 Net Income = Revenue - Cost of Goods Sold - Expenses

Net Income = $2,000,000 - $1,200,000 - $820,000

Net Income = -$20,000, indicating a net loss of ($20,000).

11 Net Income = Revenue - Cost of Goods Sold - Expenses

Net Income = $300,000 - $100,000 - $250,000

Net Income = -$50,000, indicating a net loss of ($50,000).

12 Net Income = Revenue - Cost of Goods Sold - Expenses

Net Income = $1,000,000 - $700,000 - $400,000

Net Income = -$100,000, indicating a net loss of ($100,000).

Break-Even Point

1 Break-Even Point = Fixed Costs/(Sales Price per Unit - Variable Cost per Unit)

Break-Even Point = $50,000/($10 - $6)

Break-Even Point = $50,000/$4

Break-Even Point = 12,500 units

2 Break-Even Point = Fixed Costs/(Sales Price per Unit - Variable Cost per Unit)

Break-Even Point = $100,000/($50 - $30)

Break-Even Point = $100,000/$20

Break-Even Point = 5,000 units

3 Break-Even Point = Fixed Costs/(Sales Price per Unit - Variable Cost per Unit)

Break-Even Point = $200,000/($100 - $70)

Break-Even Point = $200,000/$30

Break-Even Point = 6,666.67 units (approximately 6,667 units)

4 Break-Even Point = Fixed Costs/(Sales Price per Unit - Variable Cost per Unit)

Break-Even Point = $80,000/($20 - $12)

Break-Even Point = $80,000/$8

Break-Even Point = 10,000 units

5 Break-Even Point = Fixed Costs/(Sales Price per Unit - Variable Cost per Unit)

Break-Even Point = $30,000/($100 - $20)

Break-Even Point = $30,000/$80

Break-Even Point = 375 units

6 Break-Even Point = Fixed Costs / (Sales Price per Unit - Variable Cost per Unit)

Break-Even Point = $150,000/($200 - $50)

Break-Even Point = $150,000/$150

Break-Even Point = 1,000 units

7 Break-Even Point = Fixed Costs/(Sales Price per Unit - Variable Cost per Unit)

Break-Even Point = $50,000/($500 - $200)

Break-Even Point = $50,000/$300

Break-Even Point = 166.67 units (approximately 167 units)

Return on Investment

1 Return on Investment = ((Amount Generated - Cost of Investment)/Cost of Investment) × 100

(($12,500 - $10,000)/$10,000) × 100

($2,500/$10,000) × 100

0.25 × 100

Return on Investment = 25%

2 Return on Investment = ((Amount Generated - Cost of Investment)/Cost of Investment) × 100

(($100,000 - $50,000)/$50,000) × 100

($50,000 / $50,000) × 100

Return on Investment: 1 × 100

Return on Investment = 100%.

3 Return on Investment = ((Amount Generated - Cost of Investment)/Cost of Investment) × 100

(($6,500 - $5,000)/$5,000) × 100

($1,500/$5,000) × 100

Return on Investment: 0.3 × 100

Return on Investment = 30%.

4 Return on Investment = ((Amount Generated - Cost of Investment)/Cost of Investment) × 100

((\$150,000 - \$100,000)/\$100,000) × 100

(\$50,000/\$100,000) × 100

Return on Investment: 0.5 × 100

Return on Investment = 50%

5 Return on Investment = ((Amount Generated - Cost of Investment)/Cost of Investment) × 100

((\$30,000 - \$20,000)/\$20,000) × 100

(\$10,000/\$20,000) × 100

Return on Investment: 0.5 × 100

Return on Investment = 50%

Differentiating Fixed and Variable Costs

1 Fixed costs are expenses that remain constant regardless of the level of production, while variable costs change with the level of production.

Fixed Costs: The fixed costs in this case are the expenses that do not change with the level of production, such as rent, property tax and salaries. Fixed Costs = Rent + Property Tax + Salaries

Fixed Costs: \$2,000 + \$600 +\$5,000 = \$7,600

Variable Costs: The variable costs in this case are the expenses that change with the level of production, such as raw materials.

Variable Costs = \$3,500

Calculating Monthly Payroll Expenses

1 Total Payroll Expenses = Employee A's Salary + Employee B's Salary + Employee C's Salary + Employee D's Salary + Accountant's Salary

Total Payroll Expenses: $3,500 + $4,200 + $2,800 + $3,900 + $5,500 = $19,900

Calculate Total Assets, Total Liabilities, and Shareholders' Equity

1 Total Assets = Current Assets + Non-Current Assets = $50,000 + $100,000 = $150,000

Total Liabilities = Current Liabilities + Long-Term Liabilities = $30,000 + $50,000 = $80,000

Shareholders' Equity = Total Assets - Total Liabilities = $150,000 - $80,000 = $70,000

Therefore, the total assets are $150,000, total liabilities are $80,000, and shareholders' equity is $70,000.

Section 15.3. Entrepreneurship and Starting a New Business

1 Total Monthly Income = Salary from full-time job = $3,500

Total Monthly Expenses = Business expenses = $1,200

John's total monthly income after deducting business expenses is $3,500 - $1,200 = $2,300.

2 Total Monthly Income = Salary from full-time job = $4,000

Total Monthly Expenses = Equipment cost + Rent = $500 + $300 = $800

Samantha's total monthly income after deducting business expenses is $4,000 - $800 = $3,200.

3 Total Monthly Income from Full-Time Job = $3,000

Total Monthly Income from Business = $5,000

Total Monthly Expenses for Business = $4,500

Anna's total monthly income from the business after deducting expenses is $5,000 - $4,500 = $500. Since $500 is less than her current monthly salary of $3,000, it is more profitable for Anna to continue with her full-time job.

4 Total Monthly Income = Salary from full-time job = $2,500

Total Monthly Personal Expenses = $1,800

Total Monthly Business Expenses = $1,200

John's monthly income after deducting personal expenses is $2,500 - $1,800 = $700.

John's monthly income after deducting personal and business expenses is $700 - $1,200 = -$500.

Since John's monthly income after deducting personal and business expenses is negative, he would not have any savings.

5 Total Monthly Income = Salary from full-time job = $3,000

Total Monthly Personal Expenses = $2,000

Total Monthly Business Expenses = $1,500

Sarah's monthly income after deducting personal expenses is $3,000 - $2,000 = $1,000.

Sarah's monthly income after deducting personal and business expenses is $3,000 - $2,000 - $1,500 = -$500.

Since Sarah's monthly income after deducting personal and business expenses is negative, she would not have any savings.

6 Total Monthly Income = Salary from full-time job = $2,800

Total Monthly Personal Expenses = $1,500

Total Monthly Business Expenses = $800

Emily's monthly income after deducting personal expenses is $2,800 - $1,500 = $1,300.

Emily's monthly income after deducting personal and business expenses is $2,800 - $1,500 - $800 = $500.

Since Emily's monthly income after deducting personal and business expenses is positive, she would have savings of $500.

7 Total Monthly Income = Salary from full-time job = $3,500

Total Monthly Personal Expenses = $2,000

Total Monthly Business Expenses = $1,200

Alex's monthly income after deducting personal expenses is $3,500 - $2,000 = $1,500.

Alex's monthly income after deducting personal and business expenses is $3,500 - $2,000 - $1,200 = $300.

Since Alex's monthly income after deducting personal and business expenses is positive, he would have savings of $300.

8 Interest = Loan Amount x Interest Rate x Loan Term

Interest = $50,000 x 0.08 x 5 = $20,000

Total Amount to Repay = Loan Amount + Interest

Total Amount to Repay = $50,000 + $20,000 = $70,000

John will have to repay a total of $70,000, including interest.

9 Interest = Loan Amount x Interest Rate x Loan Term

Interest = $25,000 x 0.065 x 3 = $4,875

Total Amount to Repay = Loan Amount + Interest Total Amount to Repay = $25,000 + $4,875 = $29,875

Sarah will have to repay a total of $29,875, including interest.

Let's Explore

10 (a) The decision to become an entrepreneur involves both risks and potential rewards. The initial investment of 20,000 Euros impacted your savings, and the income fluctuations during the startup phase can create uncertainty. It's important to be prepared for periods of lower income and have a financial cushion to cover personal and business expenses during these times.

(b) Adjustments and financial considerations:

- Maintain a substantial emergency fund to cover unexpected expenses and business challenges.
- Review your insurance coverage, including health and life insurance, to ensure that you and your family are adequately protected.
- Consider the income and cost scenario if your spouse works (full-time or part-time) and you pay for childcare expenses.

(c) Balancing entrepreneurship an family security:

- Consider planning your family expansion alongside your business growth, if possible, to mitigate financial shocks.
- Explore opportunities to diversify income streams or build passive income sources to ensure greater financial stability.
- Regularly communicate with your spouse about financial goals, challenges and adjustments to maintain transparency and teamwork.