



CONSUMER MATHEMATICS 8

BUSINESS SERVICES

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BUSINESS SERVICES

Although the title of this LIFEPAK implies a much broader range of functions than the ones that will be covered, you will be provided certain mathematical skills that are essential to running an office, a business, or a household.

Fundamental to sound administration is a knowledge of bookkeeping principles. These principles and their techniques enable an individual to maintain, to understand, and to use financial records for more effective job

performance. This LIFEPAK, however, is not a course in bookkeeping. A semester in high school is a minimum requirement for training in bookkeeping.

However, certain skills and knowledge can be nurtured in this LIFEPAK. These skills will serve the individual who needs to understand budgeting, credit terms, pricing factors, payroll deductions, and cost structure in the pursuit of his occupational goals.

NOTE: Examples of dates and rates used in this unit are for practice and calculation purposes. We have chosen to continue using these numbers and amounts while acknowledging that changes are always taking place which makes it difficult to consistently reflect the most current figures. The principles presented remain the same regardless of the numbers being used.

OBJECTIVES

Read these objectives. The objectives tell you what you will be able to do when you have successfully completed this LIFEPAK.

When you have finished this LIFEPAK, you should be able

1. To prepare a balance sheet;
2. To prepare a cash budget;
3. To reconcile a bank statement with a checkbook balance;
4. To figure and list payroll deductions;
5. To list pricing considerations;
6. To define and determine fixed costs;
7. To define and determine variable costs;
8. To compute profit from business operations;
9. To calculate terms of credit; and
10. To define and figure markups, markdowns, and discounts.

Survey the LIFEPAK. Ask yourself some questions about this study. Write your questions here.

I. FINANCIAL RECORDS: Part I

OBJECTIVES

1. To prepare a balance sheet.
2. To prepare a cash budget.

Financial records are an important part of business. Every business, whether it is large or small, keeps financial records. Two financial records are the balance sheet and the cash budget.

BALANCE SHEET

The balance sheet represents a systematic listing of a firm's *assets*, *liabilities*, and *owner's equity* at a certain point in time. Certain steps exist for setting up a balance sheet.

PROCEDURE 1

The first rule in preparing a balance sheet is to place a heading centered at the top of a sheet of paper that includes the name of the firm, the words "Balance Sheet," and the date of the financial statement.

Model: You are the owner of a repair firm called ABC Repair. The date is January 1, 1980. Show the heading for your balance sheet.

ABC Repair
Balance Sheet
January 1, 1980

PROCEDURE 2

The second step in preparing a balance sheet is to show a complete listing of assets on the left side of the balance sheet. On the upper right-hand side of the balance sheet, list all liabilities. Finally, also on the right side of the balance sheet, show the owner's equity section after the liabilities section. Dollar signs are usually shown at the head of each column and with each total. Single lines are drawn to represent that the figures above it are being either added or subtracted; double lines are drawn to indicate the final sum.

Model: Prior to recording any transactions, complete the format recommended for this first balance sheet.

ABC Repair
Balance Sheet
January 1, 1980

<u>ASSETS</u>		<u>LIABILITIES AND OWNER'S EQUITY</u>	
Cash	\$ _____	<u>Liabilities</u>	
Other	\$ _____	Accounts Payable	\$ _____
	_____	<u>Owner's Equity</u>	
		Investment	\$ _____
Total Assets	\$ _____	Total Liabilities and Owner's Equity	\$ _____

Accounts payable refers to debts your company owes to other businesses or people. *Accounts receivable* refers to bills someone owes your company, money coming in. The fundamental bookkeeping equation is represented as $\text{assets} = \text{liabilities} + \text{owner's equity}$. Every business transaction causes a change in the values of the assets, liabilities, and owner's equity. The balance sheet shows the total effect of these changes in values as of the date they are totaled. Although changes result from these transactions, the fundamental equality must remain.

Model 1: Suppose you start your repair business with \$5,000 cash from your own savings account. In addition to this amount, you purchase equipment such as furniture, repair tools, and so on, for a combined value of \$1,500.

The financial transactions just completed are shown in the form of a balance sheet as of the first day of business.

ABC Repair
Balance Sheet
January 1, 1980

ASSETS

Cash \$5,000
 Equipment 1,500
 Total Assets \$6,500

Liabilities \$-0-
Owner's Equity
 Investment 6,500
 Total Liabilities
 and Owner's Equity \$6,500

Model 2: During the first month of operation, you make the following transactions:

1. Obtain a panel truck for pickup and delivery of parts on credit for \$3,500,
2. Purchase with cash some special testing equipment valued at \$750,
3. Perform repair work for which you charge and receive \$175,
4. Pay yourself \$450 in wages,
5. Pay \$60 for utilities and \$300 for rent, and
6. Pay truck maintenance costs that amount to \$45.

A new balance sheet has been prepared for the first month using the initial balance sheet prepared in Model 1. The six transactions are shown by number on the following pages.

ABC Repair
 Balance Sheet
 January 31, 1980

<u>Assets</u>	=	<u>Liabilities + Owner's Equity</u>
Previous totals: Cash + Equipment		Investment
\$5,000 \$1,500		\$6,500
TRANSACTION 1:		
a. Panel truck obtained:	+ 3,500	Accounts Payable
		\$3,500
b. Liability assumed:		
Adjustment to totals:		
<u>\$5,000 + \$5,000</u> \$10,000	=	<u>\$3,500 + \$6,500</u> \$10,000

<u>Assets</u>		<u>Liabilities + Owner's Equity</u>	
		<u>Accounts</u>	
Previous totals:	Cash + Equipment	=	Payable + Investment
	\$3,975 + \$5,750	=	\$3,500 + \$6,225

TRANSACTION 5:

- a. Cash paid out: - 360
- b. Owner's equity decreased: - 360

Adjustment to totals:

$$\underbrace{\$3,615 + \$5,750}_{\$9,365} = \underbrace{\$3,500 + \$5,865}_{\$9,365}$$

<u>Assets</u>		<u>Liabilities + Owner's Equity</u>	
		<u>Accounts</u>	
Previous totals:	Cash + Equipment	=	Payable + Investment
	\$3,615 + \$5,750	=	\$3,500 + \$5,865

TRANSACTION 6:

- a. Cash paid out: - 45
- b. Owner's equity decreased: - 45

Adjustment to totals:

$$\underbrace{\$3,570 + \$5,750}_{\$9,320} = \underbrace{\$3,500 + \$5,820}_{\$9,320}$$

Therefore, your balance sheet would look at the end of the first month like the one shown:

ABC Repair
Balance Sheet
January 31, 1980

<u>Assets</u>		<u>Liabilities and Owner's Equity</u>	
Cash	\$3,570	<u>Liabilities</u>	
Equipment	<u>5,750</u>	Accounts Payable	\$3,500
Total Assets	<u>\$9,320</u>	<u>Owner's Equity</u>	
		Investment	<u>5,820</u>
		Total Liabilities and Owner's Equity	<u>\$9,320</u>

As you follow these six transactions, you should bear in mind the following terms.

The revenue received by the business for performing services is known as *income*. The costs of doing business are called *expenses*. The difference between income and expenses represents either *profit* or *loss*; and it results, respectively, in either an *increase* or a *decrease* in the owner's equity. The balance sheet not only records these changes, but also, when properly prepared, it maintains the relationship of the fundamental bookkeeping equation, $\text{assets} = \text{liabilities} + \text{owner's equity}$.

Work the following problems in connection with the balance sheet shown.

ABC Repair
Balance Sheet
January 31, 1980

<u>Assets</u>		<u>Liabilities and Owner's Equity</u>	
Cash	\$3,570	<u>Liabilities</u>	
Equipment	<u>5,750</u>	Accounts Payable	\$3,500
Total Assets	<u>\$9,320</u>	<u>Owner's Equity</u>	
		Investment	<u>5,820</u>
		Total Liabilities and Owner's Equity	<u>\$9,320</u>

- 1.1 You repair 3 items for which you receive \$35 in cash and \$55 on credit.* Make the necessary balance-sheet entries and list the *net changes*.

*Note: Credit sales are listed under Assets as accounts receivable.

- 1.2 You make a payment of \$250 on a panel truck.* Make the necessary balance-sheet entries and list the net changes.

*Note: Payments against credit charges reduce the *out-standing* Accounts Payable total.

- 1.3 You purchase an electronic circuit tester for \$450. Make the necessary balance-sheet entries and list the net changes.

- 1.4 You pay a part-time driver \$75 in wages. Make the necessary balance-sheet entries and list the net changes.

- 1.5 You purchase testing equipment for \$815 on credit. Make the necessary balance-sheet entries and list the net changes.

- 1.6 You are given a \$1,500 contract, payable in 60 days, to make repairs at a motel. Make the necessary balance-sheet entries and list the net changes.

- 1.7 Utilities this month amount to \$85, which you pay by check. Make the necessary balance-sheet entries and list the net changes.

- 1.8 You pay the rent by check for \$300. Make the necessary balance-sheet entries and list the net changes.

- 1.9 You sell a work bench, which originally cost you \$800, for \$950 cash.* Make the necessary balance-sheet entries and list the net changes.

*Note: The original purchase price of the equipment is its value. Anything in excess of the purchase price is considered an addition to the owner's equity.

- 1.10 You withdraw \$500 in salary for yourself. Make the necessary balance-sheet entries and list the net changes.

- 1.11 You pay \$60 in cash for truck maintenance. Make the necessary balance-sheet entries and list the net changes.

- 1.12 Prepare the balance sheet for your company as of February 29, 1980, based upon your entries in Problems 1.1 through 1.11.

- 1.13 Based upon a comparison between the balance sheets for 1/31/80 and for 2/29/80, did your firm make a profit or suffer a loss, and by how much?

CASH BUDGET

A definition of a cash budget will help you as you read this section.

DEFINITION

A *cash budget* is a projection of future cash receipts and cash disbursements of a firm over an interval of time.

The value of a cash budget to a business is that the owner is better able to determine the future cash needs of his firm and thereby can plan for the financing of these needs.

Cash budgets may be prepared for almost any length of time: monthly, quarterly, semiannually, annually, or for even longer periods. If the business cycle is subject to extremes (high amounts of cash coming in some months and low amounts of cash coming in other months), then shorter forecasts are required. If the cycle is rather stable, then a longer forecast is certainly appropriate and desirable. As the first step in preparing a cash budget, the preparer makes an estimate of the firm's expected sales listed by month for the period of the projection. He can obtain such an estimate in a number of ways. If he has a previous year or previous years to use as a base, he can follow the month-to-month historical record, and either scale up or scale down the monthly averages depending on his best judgment of what kind of year will probably come. If he does not have a "track record" yet or if he thinks that the past years are not a good basis for projection, he can decide to use an industry average, a chamber of commerce business forecast, or some other indicator.

In any event, once his monthly sales estimates are prepared, he must convert them into cash receipts. Perhaps he sells on credit; if he does, he must factor in a certain time delay during which time certain sales are not directly converted into cash for the month of sale, but are held as receivables until the customers actually pay off their accounts.

Other sources of cash may be found. Perhaps the firm is planning to sell some of its other assets such as equipment, real estate, and so on. The cash received, or projected for receipt, will be factored into the monthly cash receipt projections.

After the cash budget preparer estimates the sales estimates, he makes a forecast of the firm's anticipated cash disbursements in a similar way. Salaries, utilities, purchases of materials, office expenses, rent, taxes, and so on are the normal monthly outlays of cash for any business. Again, a previous year may be a good guide on which to base the projected monthly disbursements.

Once the projected monthly cash receipts and disbursements have been made, the next step is to combine these amounts for each month and to determine whether the business has had a net inflow (more receipts than disbursements) of cash or a net outflow (more disbursements than receipts) of cash. The normal way to designate minus cash totals is to put the number, or result, in parentheses.

Model: Joe Jones owns a bakery. He projects next year's cash receipts and cash disbursements accordingly. Study the following tables to detect the months where he may experience a need for extra cash.

Schedule of Sales Receipts

<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
\$800	\$750	\$850	\$860	\$885	\$980
<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>
\$800	\$825	\$800	\$850	\$820	\$750

Schedule of Cash Disbursements

<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
\$650	\$650	\$700	\$725	\$800	\$900
<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>
\$850	\$825	\$800	\$800	\$800	\$750

List Cash Flow and Cash Balance

	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
Total Receipts	\$800	\$750	\$850	\$860	\$885	\$980
Total Disbursements	650	650	700	725	800	900
Net Cash Flow	150	100	150	135	85	80
Cumulative Cash Balance	150	250	400	535	620	700
	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>
Total Receipts	\$800	\$825	\$800	\$850	\$820	\$750
Total Disbursements	850	825	800	800	800	750
Net Cash Flow	(50)	-0-	-0-	50	20	-0-
Cumulative Cash Balance	650	650	650	700	720	720

In analyzing Joe's cash budget, he seems to be in a good financial position overall--he projects a net cash balance of \$720 for the year. However, note that in January he spends more than he takes in; and even though his cash balance is projected for \$650 up to and including January, he does not project any net inflows for the next two months. If an emergency arises, such as a breakdown in an oven or a fire loss not covered by insurance, his cash balance might be lost. Therefore, Joe will have to watch these months particularly, to see if he may have to borrow any money.

Complete these sentences.

- 1.14 Projected sales are converted into _____ for a cash budget.
- 1.15 If a business experiences wide fluctuations, it should presume a _____-range forecast.
- 1.16 Generally speaking, using a _____ year's history of cash receipts and disbursements is a satisfactory basis for projecting the future.

Write *true* or *false*.

- 1.17 _____ A cash budget is a good thing for a business to prepare because it tells the owner when he can go on vacation.
- 1.18 _____ Sales should be directly converted into cash receipts in the month the sales occur.
- 1.19 _____ In making a sales forecast, the business owner should use his best judgment with respect to total projected.

Work the following problems.

- 1.20 Given:

Schedule of Sales Receipts

<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>
\$110	\$85	\$100	\$130	\$145	\$165

Schedule of Cash Disbursements

<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>
\$135	\$110	\$95	\$95	\$100	\$105

Find:

Net Cash Flows for

a. Jan. _____ c. Mar. _____ e. May _____
b. Feb. _____ d. Apr. _____ f. June _____

Find:

Cumulative Cash Balances for

g. Jan. _____ i. Mar. _____ k. May _____
h. Feb. _____ j. Apr. _____ l. June _____

- 1.21 In reviewing your cash balances, starting with which month does the business show an overall cash surplus?



Review the material in this section in preparation for the Self Test. The Self Test will check your mastery of this particular section. The items missed on this Self Test will indicate specific areas where restudy is needed for mastery.

SELF TEST 1

Write *true* or *false* (each answer, 2 points).

- 1.01 _____ The balance sheet is used to project future cash receipts.
- 1.02 _____ The heading at the top of a balance sheet includes the name of the firm, the words "Balance Sheet," and the date of the financial statement.
- 1.03 _____ $\text{Assets} + \text{liabilities} = \text{owner's equity}$ is the fundamental bookkeeping equation.
- 1.04 _____ Although changes result from business transactions, the equality of the fundamental bookkeeping equation must remain.
- 1.05 _____ In a balance sheet double lines are shown to indicate the final sum.

Work the following problems based on the given balance sheet (each answer, 3 points).

Balance Sheet
March 31, 1979

<u>Assets</u>		<u>Liabilities and Owner's Equity</u>	
Cash	\$ 4,500	<u>Liabilities</u>	
Equipment	<u>7,000</u>	Accounts Payable	\$ 4,200
Total Assets	<u>\$11,500</u>	<u>Owner's Equity</u>	
		Investment	<u>7,300</u>
		Total Liabilities and Owner's Equity	<u>\$11,500</u>

- 1.06 You sell 2 pieces of furniture for \$1,000 to a customer. The customer pays \$500 in cash and puts the other \$500 on credit. Make the necessary balance-sheet entries and list the net changes. Remember to list credit sales under assets as accounts receivable.

- 1.07 You purchase equipment for your warehouse for \$2,400 on credit. Make the necessary balance-sheet entries and list the net changes.

Calculate the net cash flows and cumulative cash balances for the following cash budget (each answer, 3 points).

Schedule of Sales Receipts

<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>
\$300	\$150	\$95	\$270	\$400	\$345

Schedule of Cash Disbursements

<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>
\$275	\$300	\$100	\$85	\$80	\$100

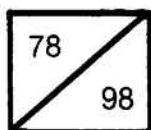
1.08

Net Cash Flows

- a. Jan. _____ c. Mar. _____ e. May _____
b. Feb. _____ d. Apr. _____ f. June _____

Cumulative Cash Balances

- g. Jan. _____ i. Mar. _____ k. May _____
h. Feb. _____ j. Apr. _____ l. June _____



Score _____
☒ Teacher check _____
Initial Date