The Accounting Equation & Transaction Analysis

A business must always have a balance between what it owns and what it owes. This is shown by the basic accounting equation:

Assets = Liabilities + Net Worth

This equation will also be used to describe the effect of every economic transaction a business completes. It is important to recognize common asset, liability, and net worth accounts. Below is a definition of each category and common accounts.

ASSET	Resources that a business uses to produce services Phrases like “billed on account” or “performed service on account” indicate a *receivables* account.	Asset accounts: cash, accounts receivable, credit card receivables, inventory, supplies, prepaid expenses. equipment, building, land, accumulated depreciation
LIABILITY	What a business owes (loans or debts) Phrases like “purchased on credit” or “purchased on account” indicate a *liabilities* account.	Liability accounts: accounts payable, wages payable, utilities payable, income tax payable, unearned revenue, notes payable, mortgage payable
NET WORTH	How much of the value of the business remains if all the liabilities are paid off Other phrases for net worth are **owner’s equity** (for proprietorships and partnerships), **shareholders’ equity** and **stockholders’ equity** (for corporations).	Net worth accounts: common stock, retained earnings **Net worth = owners’ contribution + (revenues − expenses) − withdrawals** **Net worth = owners’ contribution + (net income/loss) – withdrawals**

Net worth depends on the **owners**’ **contribution** of money to the business (*either through investments by owners/partners or issue of stock/shares in corporations*), **revenues, expenses**, and **owner withdrawals**. Revenues increase the value of net worth. Expenses reduce the value of net worth. Owner withdrawals decrease the value of net worth. In a corporation, owner withdrawals are called **dividends** (payments to shareholders).

Net income/net loss is the difference between revenues and expenses. A positive difference is income; a negative difference is loss.

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Once we understand the three types of accounts, we can analyze how transactions affect the basic accounting equation. Any change on one side of the equation must be balanced by an equal change on the other side of the equation. Algebra skills are helpful to figure out the value of one of the unknown categories if given the other two (A, L or NW) or how to explain changes in A, L, or NW.

Example 1: If assets are valued at $25,000 and stockholders' equity at $10,000 what is the value of liabilities?
Solution: Let's identify what we know: we know the value of assets ($25,000) and stockholders' equity, which is the same as net worth ($10,000).
Plan: plug the numbers into the equation and solve for the unknown:

A = L + NW
25,000 = L + 10,000 To solve for L, move the 10,000 to the other side.
L = 25,000 − 10,000 = $15,000 The value of liabilities is $15,000.

Example 2: Assets undergo a $5,000 increase and liabilities undergo a $3,000 decrease. What is the change in owners' equity?
Solution: Any changes in assets, liabilities, or net worth must be balanced in the accounting equation.
Plan: Show the change in values in the accounting equation and figure out the unknown (owner's equity, same as net worth)
A = L + NW
+5,000 = −3,000 + NW To solve for NW, move the 3,000 to the other side.
NW = 5,000 + 3,000 = +8,000
Since the number is positive, owner's equity increased by $8,000.

Example 3: At the beginning of 2013, a partnership's assets are valued at $850,000 and liabilities are $375,000. If net income for 2013 is $125,000 and owners' withdrawals are $60,000, what is the net worth of the partnership at the end of the 2013?
Solution: Any changes in net worth must be due to a change in owner's contributions, net income/loss, and owner's withdrawals.
lan: Find the net worth at the beginning of the year and adjust its value based on any of the above three events.

A = L + NW NW = A − L = 850,000 − 375,000 = $475,000

Net worth end = net worth beginning + owner contributions + net income − owner withdrawals

Net worth end = 475,000 + 0 + 125,000 − 60,000 = $540,000

For every transaction, there will always be AT LEAST 2 accounts affected. Practice recognizing basic transactions that will come up again and again.

Example 4: A business paid $500 cash for inventory. Analyze the transaction.
Solution: The two accounts involved in the transaction are *cash* and *inventory*. Cash is being paid out, so the account value decreases. The amount of inventory on hand is increasing, so the account value increases. Both of these are asset accounts; the $500 cash decrease and the $500 inventory increase produces a net change of $0 to assets.

Example 5: A hotel provides catering services of $2,500 for customers. Customers pay $1,000 cash and the remainder is billed on account. Analyze the transaction.
Solution: By providing a service, the company has earned *service revenue* of $2,500. This increases the value of NW. The hotel also receives $1,000 *cash* which increases the value of the cash account. The remainder billed on account indicates that the rest of the revenue ($1,500) goes to *accounts receivable*. The overall change in the equation is a $2,500 increase in assets (cash + accounts receivable) and a $2,500 increase in NW.

Tip: If you have to pay any kind of bill — utilities (like electricity), rent, advertising, etc. — that should automatically make you think “EXPENSE”.

Practice Problems

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1. Classify each account below as asset, liability, or net worth:
   a. Accounts payable
   b. Wage expense
   c. Unpaid revenue
   d. Prepaid insurance
   e. Accounts receivable
   f. Taxes payable
   g. Accumulated depreciation
   h. Kitchen equipment
   i. Sales revenue
   j. Owner withdrawal

2. At the beginning of the year, Starmac Corp had total assets of $800,000 and total liabilities of $550,000. Answer the following questions:
   a. What was the value of stockholder’s equity at the beginning of the year?
   b. During the year, total liabilities increased $150,000, and stockholders’ equity decreased $35,000. What is the amount of total assets at the end of the year?

3. Presented below are six business transactions. Indicate whether the transactions increased (+), decreased (−), or had no effect (NE) on assets, liabilities and stockholders’ equity (net worth).
   a. Purchased $500 hotel supplies on account
   b. Received $300 cash for providing catering services
   c. Paid $200 on accounts payable
   d. Issued shares of stock valued at $70,000
   e. Paid $100 for hotel supplies
   f. Customers prepaid for $1000 of service
   g. Received $200 bill for utilities
   h. Provide $500 worth of prepaid service

4. During the year, Hassan’s accounting practice showed an increase in net worth from $40,000 to $50,000. Hassan did not make any new investments in the business and had a net income of $12,000. What was the amount of owner withdrawals that Hassan made during the year?

5. Anne’s Cake House, Inc. was formed in January 1, 2013. On January 31, the balance sheet showed: Cash $7000; Accounts Receivable $2000; Supplies $500; Office Equipment $5000, Accounts Payable $5,500, Common Stock $7,500 and Retained Earnings $1,500, During February, the following transactions occurred:
   i. Collected $1,000 of accounts receivable
   ii. Paid $1,200 cash on accounts payable
   iii. Earned revenues of $10,000, of which $3,000 was collected in cash and the balance is due in March
   iv. Purchased additional office equipment for $2,000, paid $250 in cash and the balance on account
   v. Paid salaries $2,000, rent for February $1,500, and advertising expenses $450
   vi. Paid dividends of $550
   vii. Received $1,000 from Allied Bank-money borrowed on a note payable
   viii. Incurred utility expense for the month on account $500.

Instructions: Prepare a tabular analysis of the February transactions in the table provided. Prepare an income statement, a retained earnings statement, and a balance sheet for February.

No.	ASSETS				LIABILITIES		STOCKHOLDERS’ EQUITY	
	Cash	Accounts Receivable	Supplies	Equipment	Notes Payable	Accounts Payable	Common Stock	Retained Earnings
Starting Amount (if any)								
1								
2								
3								
4								
5								
6								
7								
8								
Balance								

Solutions

1. Classify each item as an asset, liability, or net worth:

a. Liability	f. Liability
b. Net worth	g. Asset
c. Liability	h. Asset
d. Asset	i. Net worth
e. Asset	j. Net worth

2. a. NW = A − L = 800,000– 550,000 = $250,000
   b. A = L + NW = (550,000 + 150,000) + (250,000 − 35,000) = $915,000

3.

	Assets	**Liabilities**	**Net Worth**
a.	+	+	NE
b.	+	NE	+
c.	-	-	NE
d.	+	NE	+
e.	_ + / -	NE	NE
f.	+	+	NE
g.	NE	+	-
h.	NE	-	+

4. The change in owner's equity must come from a change in owner's contribution, net income/loss, and owner's withdrawals.
   $50,000 = $40,000 + 0 + 12,000 − Withdrawals
   $2,000 = Withdrawals

No.	ASSETS				LIABILITIES		Net Worth	
	Cash	Accounts Receivable	Supplies	Equipment	Notes Payable	Accounts Payable	Common Stock	Retained Earnings
Starting Amount	$ 7,000	$ 2,000	$ 500	$ 5,000		$ 5,500	$ 7,500	$ 1,500
1	+ 1,000	− 1,000						
2	− 1,200					− 1,200		
3	+ 3,000	+ 7,000						+ 10,000 (Rev)
4	− 250			+ 2,000		+ 1,750		
5	− 3,950							− 2,000 (Sal. Exp) − 1,500 (Rent Exp) − 450 (Adv. Exp)
6	− 550							− 550 (Div)
7	+ 1,000				+ 1,000			
8						+ 500		− 500 (Utl. Exp)
Balance	$ 6,050	$ 8,000	$ 500	$ 7,000	$ 1,000	$ 6,550	$ 7,500	$ 6,500
	$ 21,550				$ 21,550			

Anne's Cake House
Income Statement
For the month ended February 28, 2009

Revenues			
	Service Revenue		$ 10,000
Expenses			
	Salaries Expense	$ 2,000	
	Rent Expense	1,500	
	Advertising Expense	450	
	Utilities Expense	500	
	Total Expenses		$ 4,450
Net Income			**$ 5,550**

Anne's Cake House
Retained Earnings Statement
For the month ended February 28, 2009

Retained Earnings, February 1	$ 1,500
Add: Net Income	5,550
	7,050
Less: Dividends	550
Retained Earnings, February 28	**$ 6,500**

Anne's Cake House
Balance Sheet
February 28, 2009

Assets

Cash	$ 6,050	
Accounts Receivable	8,000	
Supplies	500	
Office Equipment	7,000	
Total Assets		**$ 21,550**

Liabilities and Stockholders' Equity

Liabilities		
Notes payable	$ 1,000	
Accounts payable	6,550	
Total liabilities		$ 7,550
Stockholders' Equity		
Common Stock	$ 7,500	
Retained Earnings	6,500	
Total Stockholders' equity		$ 14,000
Total liabilities and Stockholders' equity		**$ 21,550**

Reference: Weygandt, J. et al. Hospitality Financial Accounting. Second Edition. John Wiley and Sons, Inc, New Jersey. 2009