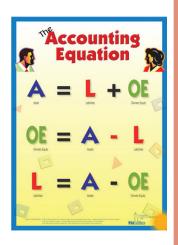


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ACCOUNTING EQUATION



You have already studied about Dual Aspect Concept and the various basic Accounting terms viz Assets, Liabilities, Capital, Expenses and Revenue. According to this concept, every transaction affects the business in two ways by the same amount. Suppose, a businessman starts his business with ₹3,00,000. In the books of accounts, ₹3,00,000 will be recorded as an asset (Cash) and equivalent amount will be shown as liability towards the owner. In this example, you have noted that assets are equal to liabilities. We can present it in mathematical form as **Assets = Liabilities** this mathematical expression is called Accounting Equation.

Every transaction has its effect on the Accounting equation in such a manner that both sides remain equal. Now, we shall take different business transactions and see their subsequent effect on the accounting equation.



After studying this lesson, you will be able to:

- state the meaning of accounting equation;
- appreciate the importance of accounting equation;
- point out the effect of each aspect of a transaction on the accounting equation;
- establish that assets are equal to liabilities and capital and
- prepare accounting equation from given transactions.

4.1 ACCOUNTING EQUATION

The recording of business transaction in books of accounts is based on a fundamental equation called Accounting Equation. Whatever business possesses in the form of assets is financed by proprietor or by outsiders. This equation expresses the equality of assets on one side and the claims of outsiders (liabilities) and owners or proprietors (capital) on the other side. Thus, an Accounting Equation is a mathematical expression which shows that the assets and liabilities of a firm are equal. In Mathematical form,

Assets = Liabilities + Capital





Whenever an asset is introduced in the business, a corresponding liability also appears. A business does not have any amount of its own. Hence, we can say that

Business owns Nothing, And Owes Nothing, (In simple words it can be said that on a particular date any business does not have neither any liability nor any asset of its own)

What it owns and what it owes?

Let us see the effect of business transactions on Accounting equation. These transactions increase or decrease the assets, liabilities or capital. Every business has certain assets. For example, Sunita started business by contributing ₹2,00,000 as capital. It can be said that asset in the form of Cash has been created for the business concern.

Sunita later on purchases furniture for $\ref{20,000}$ and machinery for $\ref{60,000}$. Now the position of the assets is a follows:

Capital = Cash + Furniture + Machinery

$$2,00,000 = 1,20,000 + 20,000 + 60,000$$

 $(2,00,000 - 80,000)$

From the above business transactions, we find that

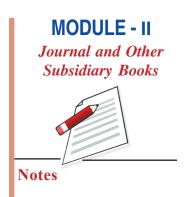
Increase or decrease in capital will result in the corresponding increase or decrease in assets. For example, Sunita introduces ₹50,000 as additional capital. Then

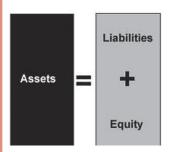
Capital = Cash + Furniture + Machinery

$$2,00,000 = 1,20,000 + 20,000 + 60,000$$

 $+50,000 = 1,70,000 + 20,000 + 60,000$

Every business concern, generally borrows money from outsiders in order to carry on its activities. In other words, every business concern owes money to outsiders. The assets are financed by the funds supplied by proprietors and outsiders. Money borrowed from outsiders is called liability.







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Accounting Equation

$$6,00,000 = 5,00,000 + 1,00,000$$

The fact that business receives funds from proprietors and creditors and retains all of them in the form of various assets, it can be presented in terms of an equation as

Assets = Capital + Liabilities or
$$A = C + L$$

Liabilities = Assets - Capital or $L = A - C$
Capital = Assets - Liabilities or $C = A - L$

Let us consider some more examples:

Rahul started business by introducing ₹3,00,000 as capital. He also invested ₹2,00,000 which he borrowed from Shweta.

Assets = Capital + Liabilities (Loan from Shweta)

$$5,00,000 = 3,00,000 + 2,00,000$$

He purchases goods for cash ₹50,000

New Equation 4,00,000 + 50,000 =

Assets = Capital + Liabilities

Cash + Goods

Old equation
$$5,00,000 = 3,00,000 + 2,00,000$$

effect of $(-)50,000 + 50,000 = 0$

transaction

New Equation
$$4,50,000 + 50,000 = 3,00,000 + 2,00,000$$

He paid Shweta ₹50,000

Assets = Capital + Liabilities

Cash + Goods

Old equation
$$4,50,000 + 50,000 = 3,00,000 + 2,00,000$$

effect of (-) $50,000 + 0 = 0$ (-) $50,000$

transaction

In the above example, expenses and revenue have not been considered. They also affect the accounting equation.

3,00,000

1,50,000

ACCOUNTANCY

Every business concern has to meet certain expenses in its day-to-day operations such as payment of salaries, rent, insurance premium, postage, wages, repairs of machines, etc. These expenses are paid regularly. All expenses reduce the cash balance as they are paid in cash. These expenses reduce the net income of the business. As the net income is the income of proprietor, which is represented by the capital account, so all expenses are deducted from the Capital account.

Similarly, every business concern receives certain revenues during its day to day operations, such as rent received, commission received, etc. Revenue is



added to the cash balance as it is received in terms of cash. Revenue increases the net income of the business and hence, it is added to the capital account.

Now, the Accounting Equation is represented by

Assets Capital Liabilities

+ revenue + revenue (cash) - expenses (cash) - expenses

Accounting equation is thus, affected by every business transaction. Any increase or decrease in assets, liabilities and capital can be identified by preparing accounting equation. It also shows that every business transaction satisfies the dual aspect concept of accounting. It also serves as a basis for preparing the Balance Sheet is also called as balance sheet equation.



INTEXT QUESTIONS 4.1

Fill in the blanks with correct words:

- Accounting equation is also called as ______ equation. i.
- Asset = _____ + Liabilities ii.
- Accounting equation satisfies the ____ concept of iii. accounting.
- Accounting equation serves as a basis for preparing iv.
- Capital = Assets _____ Capital. V.
- vi.

II. **Multiple Choice Questions**

- i. In accounting equation, assets are equal to
 - Capital only
 - b. Capital + Liabilities
 - Capital Liabilities c.
 - Liabilities Capital d.
- ii. Which of the following lists is a list of assets only?
 - Cash, Stock, Debtors, Machinery a.
 - Cash, Creditors, Loan b.
 - c. Capital, Furniture, Bill payable
 - Capital, Prepaid Expenses, Outstanding Expenses
- iii. Which of the following lists is a list of liabilities only?
 - Cash, Stock, Debtors a.
 - b. Cash, Loan, Creditors
 - Creditors, Loan, Bank Overdraft, Bills Payable c.
 - d. Prepaid Rent, Salary, Outstanding Bills receivables

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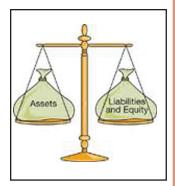




MODULE - II

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4.2 EFFECT OF TRANSACTIONS ON ACCOUNTING EQUATION

You have learnt that assets, liabilities and capital are the three basic elements of every business transaction, and their relationship is expressed in the form of accounting equation which always remains equal at any point of time, there can be a change in the individual assets, liability or capital, but the two sides of the accounting equation always remain equal. Let us examine this fact by taking up some more transactions and see how these transactions affect the accounting equation.

Suppose, Rajni starts her business and the following transactions take place:

1. She started business with cash ₹5,00,000 introduced as capital.

This transaction means that \$5,00,000 have been introduced by Rajni in terms of cash, which is the capital for the business concern. Hence on one hand, the asset (cash) has been created to the extent of \$5,00,000.

2. She purchased furniture for cash worth ₹50,000

Assets = Capital + Liabilities

Cash + Furniture

Old equation
$$5,00,000 + 0 = 5,00,000 + 0$$

Effect of the transaction (-) $50,000 + 50,000 = 0$ - 0

New equation $4,50,000 + 50,000 = 5,00,000 + 0$

This transaction has its effect only on the assets, as one asset has been purchased against the other. In this transaction, furniture is purchased against cash. Furniture and cash both are assets. Hence, furniture is increased by $\stackrel{?}{\sim} 50,000$ and cash is decreased by $\stackrel{?}{\sim} 50,000$.

3. She purchased goods for cash ₹10,000

		A_{s}	sets			=	Capital	+	Liabilities
	Cash	+	Furniture	+	Goods	=	Capital	+	Liabilities
Old equation	4,50,000	+	50,000	+	0	=	5,00,000	+	0
Effect of	- 10,000	+	0	+	10,000	=	0	+	0
the transaction									
New equation	4,40,000	+	50,000	+	10,000	=	5,00,000	+	0

Goods purchased is an asset and in return cash paid is also an asset.



Hence in this transaction, there is an increase in one asset (goods) and decrease in the other asset (cash) by $\stackrel{?}{=}10,000$ leaving the capital and liabilities untouched.

4. She purchased goods from Rohit for ₹40,000

		Α	sset			=	Capital	+	Liabilities (Rohit)
	Cash	+	Furniture	+	Goods	=			Creditors
Old equation	4,40,000	+	50,000	+	10,000	=	5,00,000	+	0
Effect of transaction	0	+	0	+	40,000	=	0	+	40,000
New equation	4,40,000	+	50,000	+	50,000	=	5,00,000	+	40,000

In this transaction, goods have been purchased on credit from Rohit, hence there is an increase in the assets (goods) by ₹40,000 as the business concern now owes money to Rohit.

In any transaction, whenever cash payment is not mentioned and the name of the seller is given, then the transaction is always a credit transaction.

5. She sold goods to Rahul for ₹20,000 costing ₹15,000.

		Ass	ets		=	Capital	+	Liabilities (Rohit)
	Cash	+ Furnita	ure + Goods + D	ebtors (Rahi	ul)			
Old equation	4,40,000	+ 50,000	+ 50,000 +	0	=	5,00,000	+	40,000
Effect of the								
Transaction	0	+ 0	- 15,000 +	20,000	=	+ 5,000	+	0
New equation	4,40,000	+ 50,000	+ 35,000 +	20,000	=	5,05,000	+	40,000

In this transaction, goods have been sold on credit to Rahul, so there is a decrease in the assets (goods) by ₹15,000, and an increase in the assets Rahul (Debtors) by ₹20,000 as money has to be collected from Rahul. In this process, the proprietor has a gain of ₹5,000 which is added to the capital.

Whenever goods are sold and nothing about cash received is mentioned and the name of the purchaser is given then that transaction is treated as credit transaction.

6. She paid salaries to clerks for ₹12,000

	Assets	=	Capital	+	Liabilities (Rohit)
	Cash + Furniture + Goods + Debtors (Rahul)				
Old Equation	4,40,000 + 50,000 + 35,000 + 20,000	=	5,05,000	+	40,000
Effect of the	-12,000 + 0 + 0 + 0	=	- 12,000	+	0
transaction					
New Equation	4,28,000 + 50,000 + 35,000 + 20,000	=	4,93,000	+	40,000

In this transaction, salaries paid to clerks is an expense for the business concern. Since salary is paid in terms of cash, hence cash as an asset is reduced by ₹12,000 and as all expenses reduce the capital, so capital is also reduced by ₹12,000.

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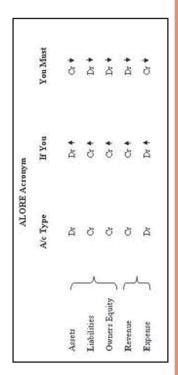






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Accounting Equation

7. Cash paid to Rohit ₹20,000

	Assets	=	Capital	+	Liabilities (Rohit)
	Cash + Furniture + Goods + Debtors (Rahul)				
Old Equation	4,28,000 + 50,000 + 35,000 + 20,000	=	4,93,000	+	40,000
Effect of the	- 20,000 + 0 + 0 + 0	=	0	-	(-) 20,000
transaction					
New Equation	4,08,000 + 50,000 + 35,000 + 20,000	=	4,93,000	+	20,000

In this transaction, cash has been paid to the creditors, (Rohit) $\stackrel{?}{\sim} 20,000$, hence cash as an asset is reduced by $\stackrel{?}{\sim} 20,000$ and also the liability (Rohit) is reduced by $\stackrel{?}{\sim} 20,000$.

From the above transactions, now you are clear as to how every transaction has its effect on the accounting equation without disturbing the equality of the two sides.

4.3 COMBINATIONS OF THE EQUATION

The inter-relationship between assets, liabilities and capital can be expressed in various forms. Nine combinations can be created.

Increase or decrease in one has a corresponding increase or decrease in itself or the other

Let us study the nine combinations with examples.

- i) Increase in asset with corresponding increase in capital **Example:** Started business with cash.
- ii) Increase in asset with corresponding increase in liabilities. **Example:** Goods purchased on credit.
- iii) Decrease in asset with corresponding decrease in capital

Example: Cash withdrawn from the business by the proprietor for personal use.

- iv) Decrease in asset with corresponding decrease in liability **Example:** Cash paid to the creditor.
- v) Increase and decrease in assets
 - **Example:** Furniture purchased for cash, Goods purchased for cash, etc.
- vi) Increase and decrease in liabilities
 - **Example:** Payment made to creditors by taking loan from bank.
- vii) Increase and decrease in capital.
 - **Example:** Interest on Capital
- viii) Increase in liabilities and decrease in capital.
 - **Example:** Wages due but not yet paid, outstanding salaries
- ix) Increase in capital and decrease in liabilities.

Example: Conversion of loan (provided by the owner) into capital.

Let us consider another Illustration and study the accounting equation once again:





Rules for Accounting Equations

- i. Capital: When capital is increased, it is credited (+) and when some part of the capital is withdrawn, i.e., drawings are made, it is debited (-).
- ii. Revenue: Owner's equty (Capital) is increased by the amount of revenue.
- **Expenses:** Owner's equity (Capital) is decreased by the amount of expenses.
- iv. Outsider's Equity: When liabilities are increased, outsiders' liabilities are credited (+).
- v. Assets: If there is an increase in Assets, the increase is debited (+) in the Asset Account. If there is decrease in Assets, the decrease in credited (-) in the Asset Account.
- vi. Effects of Outstanding Expenses: Increase in liabilities and decrease in capital.
- vii. Accrued Income: Increase in asset and increase in capital.
- viii. Income Received in Advance: Increase in asset (as cash) and increase in liabilities.
- ix. Interest on Capital is an expense for the business, and thus, profit is reduced by the amount and since interest on capital is an income for the owner it is added to capital. So the net effect of this transaction is nil on capital.
- x. Asset and Liabilities will not be affected by interest on capital and interest on drawings.

Illustration 1: Show the effect of following transactions on the Accounting Equation.

1.	Shashi started business with:	₹
	Cash	2,00,000
	Goods	1,20,000
	Machine	80,000
2.	He purchased goods for cash	50,000
3.	He sold goods (costing ₹20,000)	25,000
4.	He purchased goods from Ravi	70,000
5.	He paid cash to Ravi in full settlement	69,000
6.	He sold goods to Vikas (costing ₹54,000)	60,000
7.	He received payment from Vikas and discount	
	allowed ₹2,000	58,000
8.	Salaries paid by him	40,000
9.	Rent outstanding	4,000
10.	Prepaid insurance	1,000
11.	Commission received by him	3,000
12.	Amount withdrawn by him for personal use	30,000
13.	Interest on capital invested by him	2,000

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Accounting Equation

	1500		-	Assets	-		-		-		11 1	Li	iabil	Liabilities	+ -	Capital
S.No. Transaction Cash +		+		Goods	+	+ Machine	+	Debtors	+	Prepaid expense	II	Creditors	+	Outstanding expense	+	Capital
Started business 2,00,000 + with Cash ₹2,00,000 Goods ₹1,20,000 Machine ₹80,000		+		1,20,000	+	80,000	+	0	+	0	II	0	+	0	+	4,00,000
Goods purchased -50,000 + for₹50,000 New Equation 1.50,000 +		+ +		50,000	+ +	0 00008	+ +	0 0	+ +	0 0	11 11	0 0	+ +	0 0	+ +	0 4.00.000
ost 25,000		' +		20,000	+ +	0000008	+ +	0	+ +	0		0	+ +	0	+ +	5,000
Purchased goods 0 + from Ravi₹70,000 1,75,000 +		+ +		70,000	+ +	000008	+ +	0 0	+ +	0	11 11	70,000	+ +	0	+ +	4,05,000
Payment made to Ravi in full settlement ₹ 69,000 New Equation 1,06,000 +		+ +		0 2,20,000	+ +	000,08	+ +	0 0	+ +	0		-70,000	+ +	0 0	+ +	1,000
Goods of₹54,000 0 - Sold for₹60,000 New Equation 1,06,000 +	' +			54,000	+ +	+ 0 000,08	+ +	000'09	+ +	0	11 11	0 0	+ +	0 0	+ +	6,000
													١			

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Solution



000	000	000	00	4,000	00	0	000	3,000	00	00	00	88	00	
-2,000	4,10,000	40,000	3,70,000	4,0	3,66,000		3,66,000	3,0	3,69,000	30,000	3,39,000	-2,000	3,39,000	
+	+	ı	+	ı	+	ı	+	+	+	,	+	+	1	
0	0	0	0	4,000	4,000	0	4,000	0	4,000	0	4,000	0	4,000	3,43,000
+	+	+	+	+	+	+	+	+	+	+	+	+	+	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
II	II	II	II	Ш	II	Ш	II	II	II	II	II	II	II	
0	0	0	0	0	0	1,000	1,000	0	1,000	0	1,000	0	1,000	
+	+	+	+	+	+	+	+	+	+	+	+	+	+	
000,09	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	+	+	+	+	+	+	+	+	+	+	+	+	+	
0	80,000	0	80,000	0	80,000	0	80,000	0	80,000	0	80,000	0	80,000	3,43,000
+	+	+	+	+	+	+	+	+	+	+	+	+	+	3
0	1,66,000	0	1,66,000	0	1,66,000	0	1,66,000	0	1,66,000	0	1,660,000	0	1,66,000	
+	+	+	+	+	+	+	+	+	+	+	+	+	+	
58,000	1,64,000	40,000	1,24,000	0	1,24,000 +	-1,000	1,23,000	3,000	1,26,000	-30,000	000'96	0	000'96	
Payment of₹58,000 received from Vikas and discount ₹2,000 is allowed	New Equation	Salaries paid ₹40 000	New Equation	Rent Outstanding ₹4.000	New Equation	Prepaid Insurance ₹1,000	New Equation	Commission received ₹ 3,000	New Equation	Amount with drawn ₹ 30 000	New Equation	Interest on Capital ₹ 2.000	New Equation	Total
7.		∞.		9.		10.		11.		12.		13.		

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INTEXT QUESTIONS 4.2

Multiple Choise Questions

- i. Goods purchased from Ritu for ₹60,000. What effect will the transaction have on the Accounting Equation?
 - a) Increase in assets and increase in liability.
 - b) Increase and decrease in asset.
 - c) Increase and decrease in liability.
 - d) Decrease in asset and decrease in liability.
- ii. Rent outstanding ₹ 2,000. What effect will this transaction have on the Accounting Equation?
 - a) Increase and decrease in asset.
 - b) Increase and decrease in liability.
 - c) Increase in liability and increase in asset.
 - d) Increase in liability and decrease in Capital.
- iii. Interest on drawings amounted to ₹5,000. What effect will this transaction have on the Accounting Equation?
 - a) Increase and decrease in asset.
 - b) Increase and decrease in liability.
 - c) Increase and decrease in Capital.
 - d) Increase in asset and Increase in liability.



WHAT YOU HAVE LEARNT

- Business transaction means exchange of goods and/or services for value and any other financial activity undertaken in the course of the business.
- Every business transaction is recorded on the basis of Accounting Equation.
- Accounting equation is a statement showing the equality of assets on one hand and the capital and liabilities on the other.
- Assets = Capital + Liabilities (A = C + L)
- Every business transaction has its effect on the Accounting Equation.
- Business owns nothing and owes nothing. What it owns and what other owes to business.
- Under any circumstance, the equality of the Accounting Equation remains same.
- The effect of expenses and revenue is always on the Capital Account. Expenses reduce the Capital and revenues increase it.
- Every business transaction satisfies the Dual Aspect Concept.



• Any increase or decrease in one element of Accounting Equation has a corresponding increase or decrease on the other element or itself.



TERMINAL EXERCISE

- 1. Answer the following question in (1-10 words).
 - i. If a firm borrows a sum of money, what will be its effect on the Accounting Equation?
 - ii. Give two examples one showing the effect only on assets and the other on liabilities only.
 - iii. How will you show income received in advance in the accounting equation?
 - iv. If goods costing ₹. 8,000 are sold for ₹ 8,500, how will the capital be affected?
- 2. Answer the following in (30-50 words)
 - i. What is an Accounting Equation?
 - ii. How are revenue and expense treated in Accounting Equation?
- 3. "Accounting Equation remains intact under all circumstances" Justify this statement with the help of examples (100-150 words)
- 4. Prepare Accounting Equation on the basis of the following:
 - i. Karan started business with cash ₹1,60,000.
 - ii. He purchased furniture for cash ₹16,000.
 - iii. He paid rent ₹1,600.
 - iv. He purchased goods on credit ₹24,000.
 - v. He sold goods costing ₹16,000 for ₹40,000 for cash.
- 5. Akshay had the following transactions:

		₹
i.	Commenced business with cash	2,50,000
ii.	Purchased goods for cash	1,00,000
iii.	Salaries paid	2,500
iv.	Sold goods for cash ₹2,00,000 costing	1,50,000
V.	Rent outstanding	500
vi.	Purchased goods on credit	1,50,000
vii.	Purchased Machinery on credit	25,000
viii.	Purchased Motorcycle for personal use	25,000
ix.	Purchased building for cash	1,00,000
TIaa A	Association Equation to all any the affect of the	-1 4 4:

Use Accounting Equation to show the effect of the above transactions on the assets, liabilities and capital.

MODULE - II

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Accounting Equation

₹

6. Show the Accounting Equation on the basis of the following transactions:

i.	Shivam Started business	
	Cash	5,00,000
	Goods	2,00,000
ii.	He purchased machinery for cash	2,50,000
iii.	He purchased goods from Ramesh	1,00,000
iv.	He sold goods to Suresh (Cost ₹25,000)	30,000
V.	Paid insurance premium	5,000
vi.	Salary outstanding	10,000
vii.	Depreciation of Machinery	25,000
viii.	Interest on Capital	3,000
ix.	Amount withdrawn for personal use	18,000
Χ.	Interest on drawings	900
xi.	Rent received in advance	1,500
xii.	Cash paid to Ramesh	50,000
xiii.	Cash received from Suresh	15,000



ANSWER TO INTEXT QUESTIONS

4.1	I.	(i) balance sheet (iii) dual aspect	(ii) capital (iv) balance sheet
	II.	(v) liabilities (i) b (ii) a (iii) c	(vi) assets

4.2 (i) a (ii) d (iii) c

ACTIVITIES FOR YOU

- Enquire from various business organisations and list various methods of maintaining the record of transactions.
- Write down ten business transactions and prepare the accounting equation for them and ensure that they are equal at each and every step.