

## LESSON PLAN 7

CLASS : 7 TEACHER'S NAME :

NAME OF THE UNIT	SUB-TOPICS	NO OF PERIODS REQUIRED			Time line for teaching	
		Teaching	Practice	TOTAL	From	To
<b>COMPARING QUANTITIES</b>	7.1 PERCENTAGE - ANOTHER WAY OF COMPARING QUANTITIES	3	3	6		
	7.1.1 MEANING OF PERCENTAGE					
	7.1.2 CONVERTING FRACTIONAL NUMBERS TO PERCENTAGE					
	7.1.3 CONVERTING DECIMALS TO PERCENTAGE					
	7.1.4 CONVERTING PERCENTAGES TO FRACTIONS OR DECIMALS					
	7.1.5 FUN WITH ESTIMATION					
	7.2 USE OF PERCENTAGES	2	3	5		
	7.2.1 INTERPRETING PERCENTAGES					
	7.2.2 CONVERTING PERCENTAGES TO HOW MANY					
	7.2.3 RATIOS TO PERCENTS					
7.2.4 INCREASE OR DECREASE AS PERCENT						
7.3 PRICES RELATED TO AN ITEM OR BUYING AND SELLING	3	5	8			
7.3.1 PROFIT OR LOSS AS A PERCENTAGE						
7.4 CHARGE GIVEN ON BORROWED MONEY OR SIMPLE INTEREST						
7.4.1 INTEREST FOR MULTIPLE YEARS						
TOTAL	8	11	19			
<b>KEY CONCEPTS</b>		<b>KEY VOCABULARY</b>				
<b>PRE-REQUISITES</b>	Every Pupil is expected to have basic knowledge in # fractions and decimals and their basic operations like +, -, x, ÷ # converting decimals into fractions and vice versa # comparison of two quantities and deciding which one is higher and which one is lower # estimation of profit and loss in their day to day transaction activities	# comparison # Quantity, fraction, decimal # Percentage %, Percentum, perhundred # One Hundredth, Ratio # conversion # Estimation # Expenditure			# Interpretation # Increase, Decrease # Cost Price, Selling Price, charge, Rate # Borrowing, Sum # Principal, Interest # simple Interest # Amount, annum	

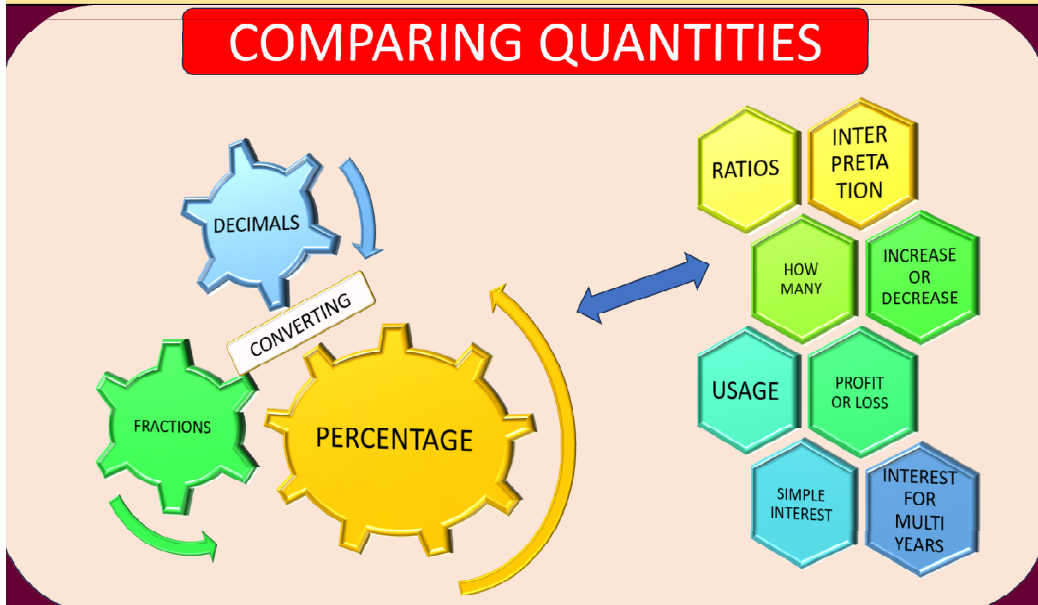
## LEARNING OUTCOMES

After Completion of this lesson every student will be able to

- # apprehend what comparing quantities really mean
- # compare two quantities with the help of finding percentage.
- # convert fractions and decimals into percentages and vice versa
- # estimate the percentage of a quantity upto an approximate extent
- # perform sums related to percentages in real life situations
- # Interpret quantities in percentage and convert ratios into percentage.
- # do sums related to cost price, selling price and calculate the profit or loss and its percentage .
- # Find simple interest of the money borrowed and calculate the amount and apply the concept in real life situations
- # recognize the significance and appreciate the importance of Comparing quantities in real life situations.

## Teaching Learning Process

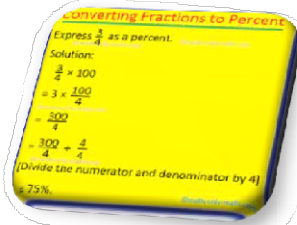
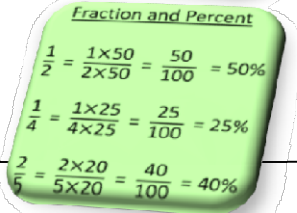
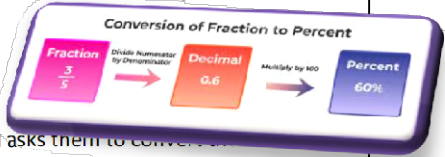
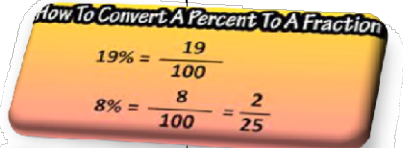
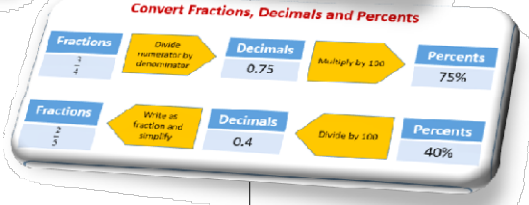
### MIND MAPPING




### Experience & Reflection

# Pupils will recollect their knowledge on fractions, decimals and their implications and utilize that knowledge in learning the new concept of comparing quantities

# Students will experience the applications of various techniques adopted in comparing quantities in real life situations.

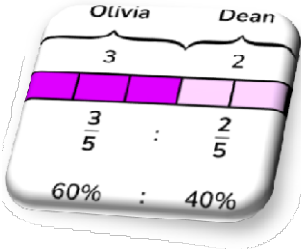
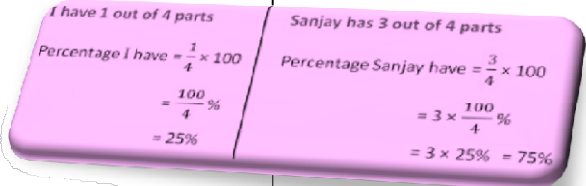
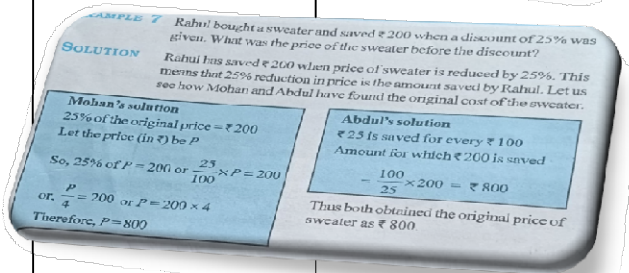
PERCENTAGE - ANOTHER WAY OF COMPARING QUANTITIES, MEANING OF PERCENTAGE CONVERTING FRACTIONAL NUMBERS TO PERCENTAGE, CONVERTING DECIMALS TO PERCENTAGE, CONVERTING PERCENTAGES TO FRACTIONS OR DECIMALS, FUN WITH ESTIMATION			
TEACHING PERIOD : 1,2,3			
CONCEPTS/STEPS	TEACHER ACTIVITY (I DO)	GROUP ACTIVITY (WE DO)	INDIVIDUAL ACTIVITY ( YOU DO )
KEY WORDS & PRE REQUISITES	Brain storming session involving children with pre-requisites vocabulary and concepts related to previous knowledge. Introduction of new vocabulary and key words associated with the concept # Percentage # Fraction # Numerator # Denominator # Per Centum # Per Hundred # Decimals # Conversion # Estimation	* Students read the pre-requisites and answer the questions to the teacher (whole class activity)	Every Pupil will read and write the key words in their note books
MIND MAPPING	Teacher writes the key word "COMPARING QUANTITIES " on the black board and will elicit its other related words through questioning and will draw pupils' attention towards key concepts in the lesson	Heterogeneous groups are created. One group will read the words and other will explain the meaning	Pupils individually read the keywords associated with the chapter
CONCEPTUAL UNDERSTANDING	Teacher recalls the knowledge of children on fractions and decimals and drags their attention towards fractions with 100 as denominator. Later teacher explains the meaning of percentage and its Latin origin Per Centum and its symbol %. Now teacher cites a number of illustrations by converting fractions into percentage. In the later sessions teacher conducts an activity by involving heterogeneous groups by giving different decimal numbered cards and asks them to convert them into fractions and then into percentage. After this activity teacher draws the attention of children towards the easy process of converting decimals into percentage by some illustrations. Here teacher also explains the way how we can convert percentages into fractions and decimals by writing them as fraction with denominator 100 through some illustrations In the upcoming sessions teacher guides children in estimating percentage through some exemplary illustrations	Heterogeneous groups are formed to participate in the activities	Each student in the group participates in the activities and learns the concept of converting fractions and decimals into percentages and vice versa
LEARNING ACTIVITY	 	  	
SUMMARY	Teacher writes the summary of the concept in a step wise procedure and asks children to note and read	pupils will note down and read the summary in groups	every individual reads the summary and notes it down
ASSESSMENT	Teacher asks children to solve the sums of try these section, Think Discuss & Write along with example sums and exercise sums of 7.1	every group will do the sums by discussion among each other	every individual solves the sums on their own

<b>PERCENTAGE - ANOTHER WAY OF COMPARING QUANTITIES, MEANING OF PERCENTAGE            CONVERTING FRACTIONAL NUMBERS TO PERCENTAGE, CONVERTING DECIMALS TO PERCENTAGE, CONVERTING            PERCENTAGES TO FRACTIONS OR DECIMALS, FUN WITH ESTIMATION</b>			
PRACTICE PERIOD: 1,2,3			
CONCEPTS/STEPS	TEACHER ACTIVITY (I DO)	GROUP ACTIVITY (WE DO)	INDIVIDUAL ACTIVITY (YOU DO)
KEY WORDS READING	Teacher writes the key words from previous class's teaching period and asks children to read and write them in note books # Percentage # Fraction # Numerator # Denominator # Per Centum # Per Hundred # Decimals # Conversion # Estimation	Whole class activity : one child comes to the board and reads the key words loudly and the remaining class follows.	Every child comes to the board and reads the key words and notes them down in their note books
SIMILAR LINES READING	Teacher converts some fractions and decimals into percentage and vice versa and asks children to convert some more by watching similar lines. <div style="text-align: center;">  </div>	Each group will read the similar lines and will frame some more by discussion	Every Individual prepares their own similar lines using the lines prepared by the teacher
SUMMARY/ SYNOPSIS	Teacher once again writes important key words and summary of the concept and asks children to read, note down and practice.	pupils will note down and read the summary in groups	every individual spells and reads the summary and notes it down
WRITING/ EDITING	Teacher guides children in doing sums of exercise 7.1 on their own and checks their writings	One group will check the writings of the other and vice versa	Slow learners are focused and teacher will ascertain that every individual learns the concept in the forth coming practice sessions

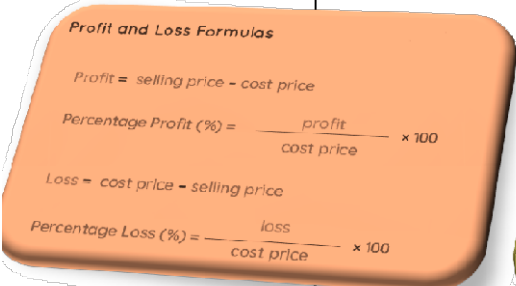
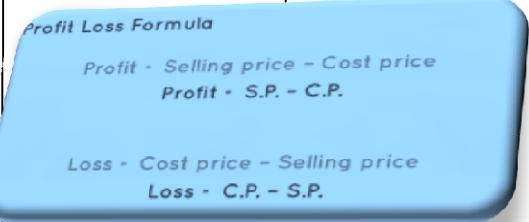
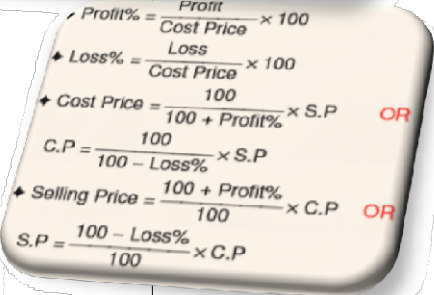
### EQUIVALENCIES

$\xrightarrow{\text{divide by 100}}$  PERCENTAGES (out of one hundred)  $\xrightarrow{\text{write it as a fraction out of 100}}$  FRACTIONS  $\xrightarrow{\text{convert}}$  DECIMALS

60%	=	0.6	=	$\frac{60}{100}$	=	$\frac{3}{5}$
25%	=	0.25	=	$\frac{25}{100}$	=	$\frac{1}{4}$
72%	=	0.72	=	$\frac{72}{100}$	=	$\frac{18}{25}$

TEACHING PERIOD : 4,5	USE OF PERCENTAGES, INTERPRETING PERCENTAGES, CONVERTING PERCENTAGES TO HOW MANY, RATIOS TO PERCENTS, INCREASE OR DECREASE AS PERCENT		
CONCEPTS/STEPS	TEACHER ACTIVITY ( I DO )	GROUP ACTIVITY ( WE DO )	INDIVIDUAL ACTIVITY ( YOU DO )
KEY WORDS	Brain storming session involving children with key words # Interpretation # Conversion # Ratio # Increase # Decrease	* Students read the keywords answer the	Every Pupil will read and write the key words in their note books
CONCEPTUAL UNDERSTANDING  	Teacher once again recalls the concept of calculating percentage once and now gives a brief on use of percentages in real life situations and explains how calculating percentage can be handy when we deal with sums related to comparing situations in real life scenarios. Teacher conducts an activity by involving whole class. Teacher asks children to note down the FA-1 Marks obtained by them in each subject and calculate the percentage of marks they have obtained in each subject along with total marks percentage also. Here teacher guides children to calculate the percentage in two ways through an illustration. Later teacher briefs out the way how we express the parts of a ratio in percentage. Now teacher asks children to compare their FA-2 Marks with that of FA-1 and check whether there is an increase or decrease in percentage. Here teacher also guides children to find the class average as they have already learnt in data handling chapter and find the increase or decrease in percentage of the class average from previous assessment to present assessment.	pupils are divided into heterogeneous groups and engaged in the activity  	Each student in the group participates in the activity and learns the concept
LEARNING ACTIVITY			
SUMMARY	Teacher once again writes important key words and summary of the concept and asks children to note down and adopt.	Pupils will note down and read the summary in groups	Every individual reads the summary and notes it down and adopts the procedure
ASSESSMENT	Teacher gives some questions from Try These sections as well as sums from exercise 7.1 and examples as well and asks children to do those sums	Every group will do the sums by discussion among each other	Every individual solves the sums on their own

PRACTICE PERIODS: 4,5,6	USE OF PERCENTAGES, INTERPRETING PERCENTAGES, CONVERTING PERCENTAGES TO HOW MANY, RATIOS TO PERCENTS, INCREASE OR DECREASE AS PERCENT										
CONCEPTS/STEPS	TEACHER ACTIVITY (I DO)	GROUP ACTIVITY (WE DO)	INDIVIDUAL ACTIVITY (YOU DO)								
KEY WORDS READING	Teacher writes the key words from previous class's teaching period and asks children to read and write them in note books # Interpretation # Conversion # Ratio # Increase # Decrease	Whole class activity : one child comes to the board and reads the key words loudly	Every child comes to the board and reads the key words and notes them down in their note								
SIMILAR LINES READING	Teacher takes a real life example and uses the concept of finding percentage and interpret how this concept comes handy in comparing quantities with some illustrations and asks children to watch and solve some more exemplary sums related with real life by watching similar lines.	Each group will read the similar lines and will frame some more by watching them	Every individual will watch the similar lines and will frame some more								
	<p>9 If ₹ 250 is to be divided amongst Ravi, Raju and Roy, so that Ravi gets two parts, Raju three parts and Roy five parts. How much money will each get? What will it be in percentages?</p> <p><b>Soln</b> The parts which the three boys are getting can be written in terms of ratios as 2 : 3 : 5. Total of the parts is 2 + 3 + 5 = 10.</p> <table border="0"> <tr> <td><b>Amounts received by each</b></td> <td><b>Percentages of money for each</b></td> </tr> <tr> <td><math>\frac{2}{10} \times ₹ 250 = ₹ 50</math></td> <td>Ravi gets <math>\frac{2}{10} \times 100 \% = 20 \%</math></td> </tr> <tr> <td><math>\frac{3}{10} \times ₹ 250 = ₹ 75</math></td> <td>Raju gets <math>\frac{3}{10} \times 100 \% = 30 \%</math></td> </tr> <tr> <td><math>\frac{5}{10} \times ₹ 250 = ₹ 125</math></td> <td>Roy gets <math>\frac{5}{10} \times 100 \% = 50 \%</math></td> </tr> </table>			<b>Amounts received by each</b>	<b>Percentages of money for each</b>	$\frac{2}{10} \times ₹ 250 = ₹ 50$	Ravi gets $\frac{2}{10} \times 100 \% = 20 \%$	$\frac{3}{10} \times ₹ 250 = ₹ 75$	Raju gets $\frac{3}{10} \times 100 \% = 30 \%$	$\frac{5}{10} \times ₹ 250 = ₹ 125$	Roy gets $\frac{5}{10} \times 100 \% = 50 \%$
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SUMMARY/ SYNOPSIS	Teacher once again writes important key words and summary of the concepts covered and asks children to note down and adopt.	Pupil groups will read and adopt the procedure	Teacher focuses on every individual so that each one learns the concept in successive upcoming practice sessions								
WRITING/ EDITING	Teacher gives some questions from Try These sections and guides them in doing some sums of examples and exercise 7.1 & 7.2 and teacher checks the writings of children	One group will check the writings of the other and vice versa									

TEACHING PERIOD : 6,7,8	PRICES RELATED TO AN ITEM OR BUYING AND SELLING, PROFIT OR LOSS AS A PERCENTAGE, CHARGE GIVEN ON BORROWED MONEY OR SIMPLE INTEREST, INTEREST FOR MULTIPLE YEARS		
CONCEPTS/STEPS	TEACHER ACTIVITY ( I DO )	GROUP ACTIVITY ( WE DO )	INDIVIDUAL ACTIVITY ( YOU DO )
KEY WORDS	Brain storming session involving children with key words # Cost Price # Selling Price # Profit # Loss # Borrowing # Simple Interest # Principal # Amount # Interest for multiple years	* Students read the key words and answer the questions to the teacher	Every Pupil will read and write the key words in their note books
CONCEPTUAL UNDERSTANDING	Teacher quotes some real life situations where pupils happen to participate in buying or selling articles or goods. Teacher makes children familiar with the terminology like Cost Price (CP), Selling Price (S.P), Profit (p) Loss (l) .Teacher draws the attention of children to guess the profit or loss they incurred in those cases and now guides children how the percentage of profit or loss is getting calculated over Cost Price through some illustrations. After getting acquainted with the concept of finding profit or loss percentage teacher explains the concept of interest given or taken on borrowings . Teacher makes the pupils familiar with the meanings of the nomenclature like Principal, Interest, Amount and formulae like Interest= PTR/100, Amount = Principal + Interest associated with the concept and presents some illustrations to depict the way of calculating interest for 1 year as well as for multiple years	Heterogeneous groups are created and are engaged in activities	Every child participates in the activity and understands the concept
LEARNING ACTIVITY	 <p><b>Profit and Loss Formulas</b></p> <p>Profit = selling price - cost price</p> <p>Percentage Profit (%) = <math>\frac{\text{profit}}{\text{cost price}} \times 100</math></p> <p>Loss = cost price - selling price</p> <p>Percentage Loss (%) = <math>\frac{\text{loss}}{\text{cost price}} \times 100</math></p>	 <p><b>Profit Loss Formula</b></p> <p>Profit = Selling price - Cost price Profit = S.P. - C.P.</p> <p>Loss = Cost price - Selling price Loss = C.P. - S.P.</p>	 <p>Profit% = <math>\frac{\text{Profit}}{\text{Cost Price}} \times 100</math></p> <p>Loss% = <math>\frac{\text{Loss}}{\text{Cost Price}} \times 100</math></p> <p>Cost Price = <math>\frac{100}{100 + \text{Profit\%}} \times \text{S.P}</math> OR</p> <p>C.P = <math>\frac{100}{100 - \text{Loss\%}} \times \text{S.P}</math></p> <p>Selling Price = <math>\frac{100 + \text{Profit\%}}{100} \times \text{C.P}</math> OR</p> <p>S.P = <math>\frac{100 - \text{Loss\%}}{100} \times \text{C.P}</math></p>
SUMMARY	Teacher writes the summary of the concept discussed and asks children to read, note down and adopt	pupils will note down and read the summary in groups	every individual reads the summary and notes it down and adopts the procedure

**Profit and Loss Formulas**

Profit = selling price - cost price

Percentage Profit (%) =  $\frac{\text{profit}}{\text{cost price}} \times 100$

Loss = cost price - selling price

Percentage Loss (%) =  $\frac{\text{loss}}{\text{cost price}} \times 100$

**EXAMPLE 12** The cost of a flower vase is ₹ 120. If the shopkeeper sells it at a loss of 10%, find the price at which it is sold.

**SOLUTION** We are given that CP = ₹ 120 and Loss per cent = 10. We have to find the SP.

**Sohan does it like this**  
Loss of 10% means if CP is ₹ 100, Loss is ₹ 10  
Therefore, SP would be  
₹ (100 - 10) = ₹ 90  
When CP is ₹ 100, SP is ₹ 90.  
Therefore, if CP were ₹ 120 then  
 $SP = \frac{90}{100} \times 120 = ₹ 108$

**Anandi does it like this**  
Loss is 10% of the cost price  
= 10% of ₹ 120  
=  $\frac{10}{100} \times 120 = ₹ 12$   
Therefore  
SP = CP - Loss  
= ₹ 120 - ₹ 12 = ₹ 108  
Thus, by both methods we get the SP as ₹ 108.

**Profit Loss Formula**

Profit = Selling price - Cost price  
Profit = S.P. - C.P.

Loss = Cost price - Selling price  
Loss = C.P. - S.P.

Profit% =  $\frac{\text{Profit}}{\text{Cost Price}} \times 100$

Loss% =  $\frac{\text{Loss}}{\text{Cost Price}} \times 100$

Cost Price =  $\frac{100}{100 + \text{Profit\%}} \times \text{S.P}$  OR

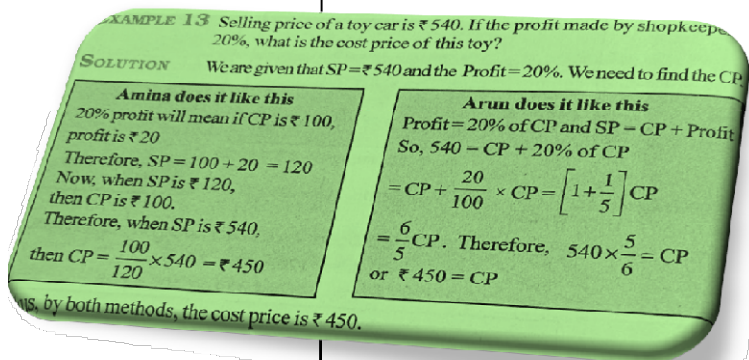
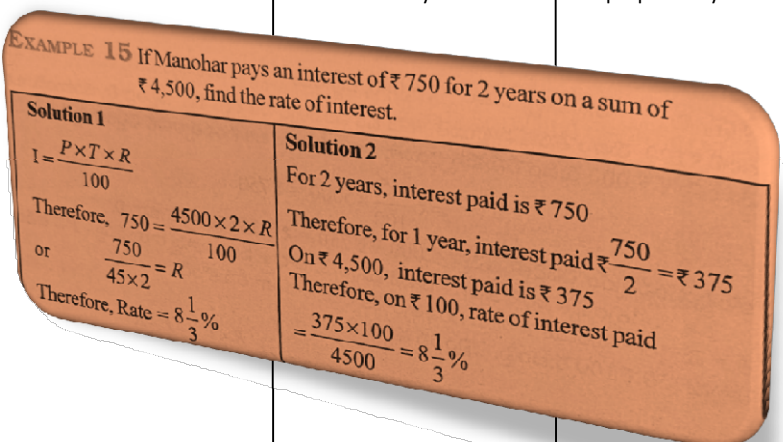
C.P =  $\frac{100}{100 - \text{Loss\%}} \times \text{S.P}$

Selling Price =  $\frac{100 + \text{Profit\%}}{100} \times \text{C.P}$  OR

S.P =  $\frac{100 - \text{Loss\%}}{100} \times \text{C.P}$

ASSESSMENT	Teacher gives some questions from Try These section and exercise sums of 7.2 and asks children to solve those sums	every group will do the sums by discussion among each other	every individual solves the sums on their own
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PRACTICE PERIODS: 7 to 11			
PRICES RELATED TO AN ITEM OR BUYING AND SELLING, PROFIT OR LOSS AS A PERCENTAGE, CHARGE GIVEN ON BORROWED MONEY OR SIMPLE INTEREST, INTEREST FOR MULTIPLE YEARS			
CONCEPTS/STEPS	TEACHER ACTIVITY ( I DO )	GROUP ACTIVITY ( WE DO )	INDIVIDUAL ACTIVITY ( YOU DO )
KEY WORDS READING	Teacher writes the key words from previous class's teaching period and asks children to read and write them in note books # Cost Price # Selling Price # Profit # Loss # Borrowing # Simple Interest # Principal # Amount # Interest for multiple years	Whole class activity : one child comes to the board and reads the key words loudly and the remaining class follows.	Every child comes to the board and reads the key words and notes them down in their note books
SIMILAR LINES READING	Teacher will solve some exemplary sums related to profit or loss and interest on borrowings and asks children to do some more by watching similar lines	Each group will read the similar lines and will solve some more by discussion	Every Individual prepares their own similar lines using the lines prepared by the teacher
	 		
SUMMARY/ SYNOPSIS	Teacher once again writes important key words and summary and asks children to read ,note down and adopt.	Pupil groups will read the summary and utilize	Teacher focuses on every individual so that each one knows
WRITING/ EDITING	Teacher asks children to solve the sums of exercise 7.2 on their own and teacher checks the writings of children	One group will check the writings of the other and vice versa	and adopts the concept learnt in successive upcoming practice sessions