LESSON PLAN 12

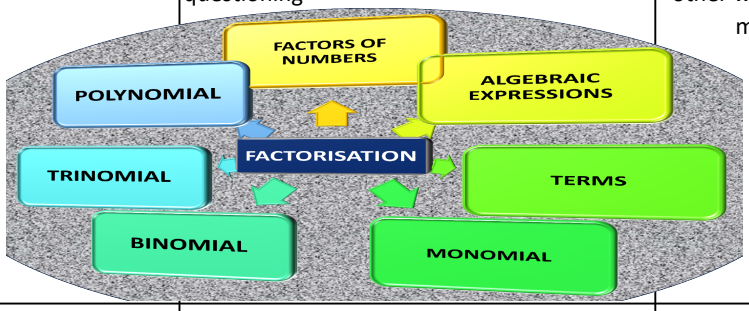
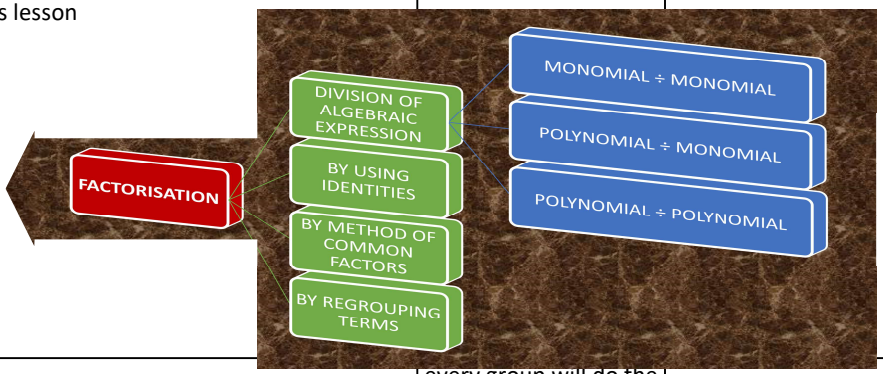
TEACHER'S NAME : **SUBJECT: MATHEMATICS**

CLASS: 8 **UNIT : FACTORISATION** **No.of Periods: 12+13=25**

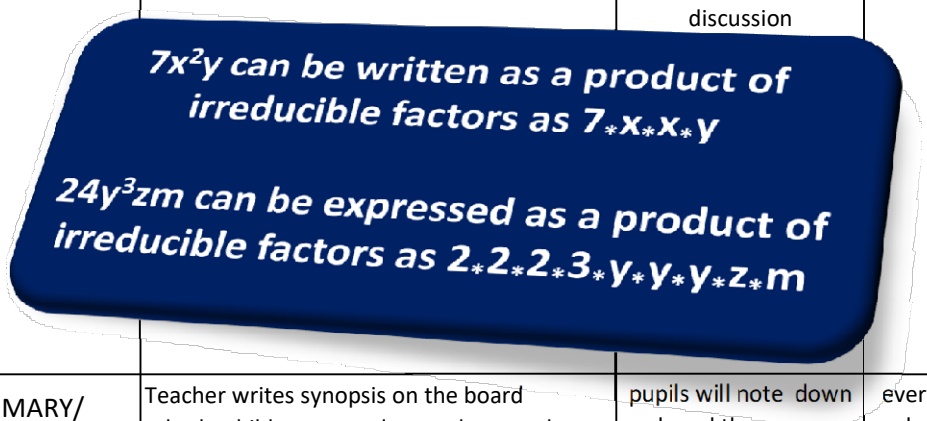
PERIOD ALLOTMENT

NAME OF THE UNIT	SUB-TOPICS	NO OF PERIODS REQUIRED			Time line for teaching	
		Teaching	Practice	TOTAL	From	To
FACTORISATION	12.1 PRE-REQUISITES & INTRODUCTION 12.1.1 FACTORS OF NATURAL NUMBERS 12.1.2 FACTORS OF ALGEBRAIC EXPRESSIONS	1	1	2		
	12.2 WHAT IS FACTORISATION? 12.2.1 METHOD OF COMMON FACTORS 12.2.2 FACTORISATION BY REGROUPING TERMS 12.2.3 FACTORISATION USING IDENTITIES 12.2.4 FACTORS OF THE FORM (x+a)(x+b)	5	6	11		
	12.3 DIVISION OF ALGEBRAIC EXPRESSIONS 12.3.1 DIVISION OF MONOMIAL BY ANOTHER MONOMIAL 12.3.2 DIVISION OF A POLYNOMIAL BY A MONOMIAL 12.3.3 DIVISION OF ALGEBRAIC EXPRESSIONS CONTINUED (POLYNOMIAL÷POLYNOMIAL)	6	6	12		
	TOTAL	12	13	25		

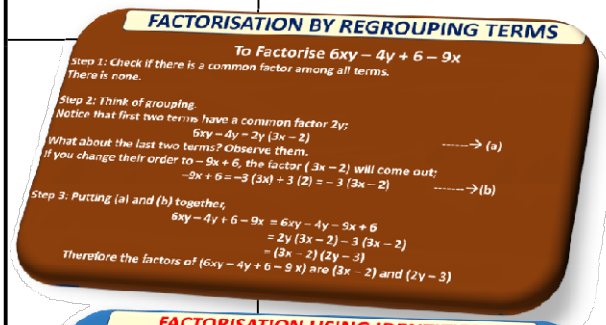
PRE-REQUISITES OF THE LESSION	LEARNING OUTCOMES
Every Pupil is expected to have basic knowledge in # factorising natural numbers # terminology related to algebraic expressions like, term, expression,numerical expression, algebraic expression, variable, constant, etc., # four basic operations +,-,x,÷ # expressing terms with more numbers of variables and constants by splitting using product. # applying different properties like distributive property,commutative property etc., in treating algebraic expressions for simplification.	After Completion of this lesson every student will be able to # understand that factorisation of algebraic expression is similar to factorising natural numbers # find factors of a given algebraic expression using different methods like method of common factors & using identities # perform division of a polynomial with another polynomial. # Utilize the concept of Factorisation in real life sums # appreciate the utility of "Factorisation" in real life situations

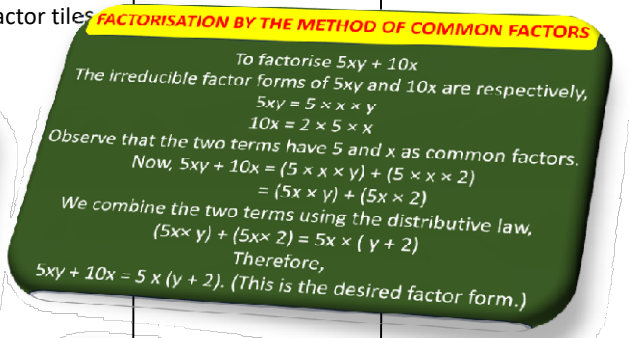
TEACHING PERIOD : 1 (PRE - REQUISITES & INTRODUCTION - FACTORS OF NATURAL NUMBERS -FACTORS OF ALGEBRAIC EXPRESSIONS)			
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
PRE REQUISITES	Brain storming session invoving children with pre-requisites vocabulary and concepts related to previous knowledge. Introduction of new vocabulary and key words associated with the concept through questioning # Factors of Numbers & Algebraic expression # terms # Monomial # Binomial # Trinomial # Polynomial	* 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 " FACTORISATION" on the black board and will elict its other related words through questioning 	Hetrogeneous groups are created. One group will read the words and other will explain the meaning	Pupils individually read the keywords associated with the lesson
RELEVANCE OF THE LESSON	Teacher conducts a discussion on the importance of the lesson through questioning 1) How will you factorize 36 ? 2) What an expression consisting of unknown variables called? 3) How can you express the term 27 x^2y as a product of different irreducible terms?	Students participate in the discussion and ask questions	Pupils individually write their responses to the questions asked
CONCEPT MAP	Teacher displays the concept map depicting various concepts that pupil are going to learn in this lesson 	Whole class read the concept map	
ASSESSMENT	Teacher poses some questions to test their knowledge on prerequisites.	every group will do the task by discussion among each other	every individual solves the task on their own

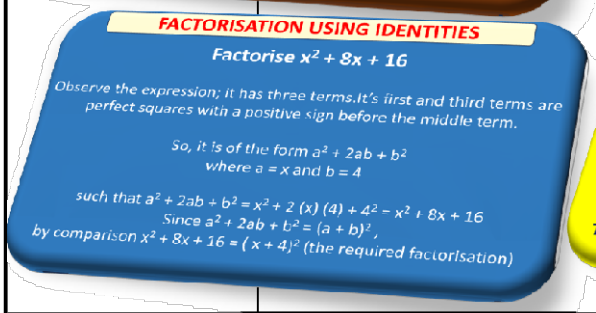
PRACTICE PERIOD: 1			
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS READING	Teacher writes the key words from previous class's teaching period and asks children to read and write them in note books # Factors of Numbers & Algebraic expression # terms # Monomial # Binomial # Trinomial # Polynomial	Students read these key words in groups and will try to give examples to each key word	Every child comes to the board and reads the key words and notes them down in their note books
SIMILAR LINES READING	Teacher writes some algebraic expressions as product of irreducible terms and asks children to write some more by watching similar lines	Each group will observe the similar lines and will frame some more by discussion	Every Individual will frame some more using similar lines
SUMMARY/ SYNOPSIS	Teacher writes synopsis on the board nd 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 conducts a dictation on key words ,pre-requisites and similar lines and asks children to exchange books for editing after writing is finished.	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

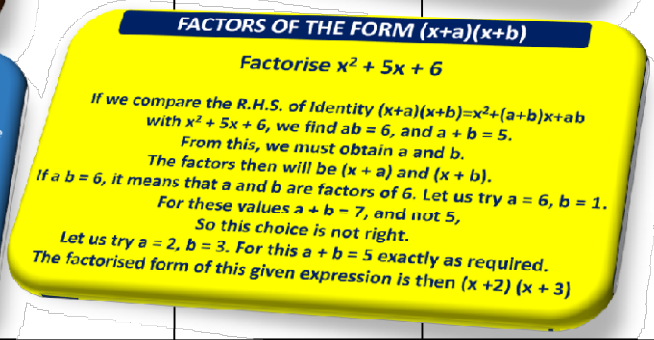


TEACHING PERIODS : 2 to 5	WHAT IS FACTORISATION?, METHOD OF COMMON FACTORS, FACTORISATION BY REGROUPING TERMS, FACTORISATION USING IDENTITIES, FACTORS OF THE FORM (x+a)(x+b)		
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS	Brain storming session invoving children with key words # factorisation # Method of common factors # Regrouping terms # Identities	* Students read the keywords answer the questions to the teacher (whole class	Every Pupil will read and write the key words in their note books
CONCEPTUAL UNDERSTANDING LEARNING ACTIVITY	Teacher demonstrates the concept of different factorisation methods like 1) factorisation by the method of common factors 2) factorisation by regrouping terms 3) factorisation by using identities 4) factorisation of expressions of the form (x+a)(x+b) through some exemplary illustrations and activities using factor tiles	Each group will understand the concepts by participation in the activity	every child learns the concept through the learning acitivity
SUMMARY	Teacher once again writes important key words and procedures 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 some examples 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

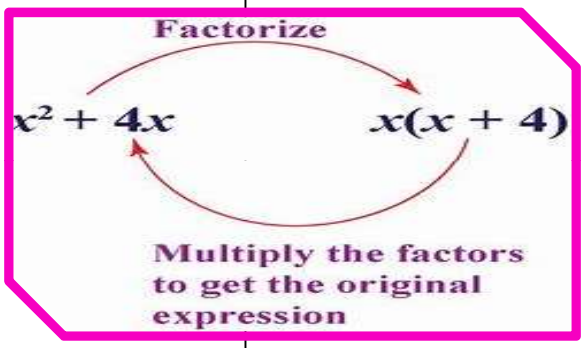


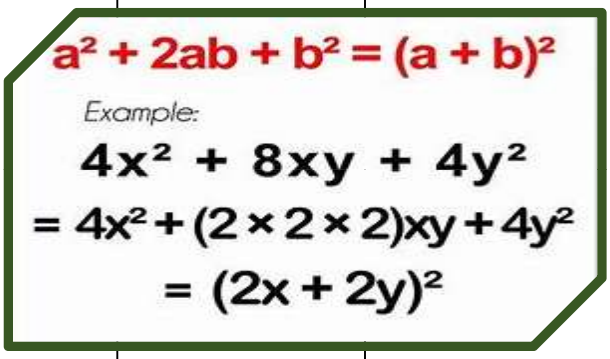


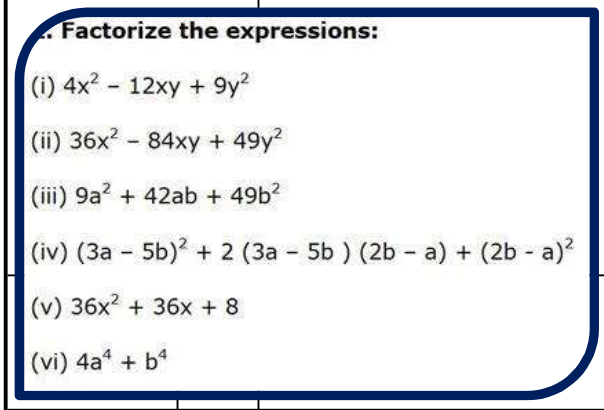


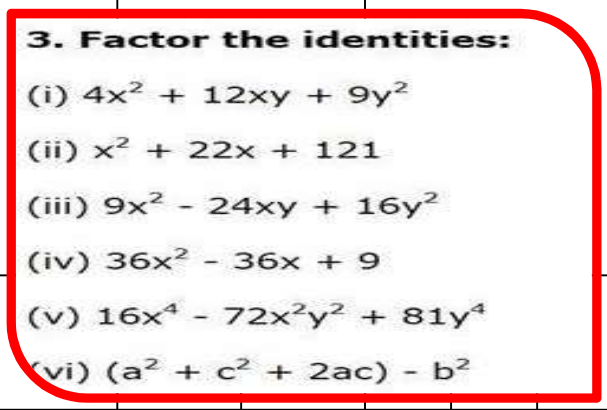


PRACTICE PERIODS : 2 to 6	WHAT IS FACTORISATION?, METHOD OF COMMON FACTORS, FACTORISATION BY REGROUPING TERMS, FACTORISATION USING IDENTITIES, FACTORS OF THE FORM (x+a)(x+b)		
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS READING	Teacher writes the key words from previous class's teaching period and asks children to read and write them in note books # factorisation # Method of common factors # Regrouping terms # Identities	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 factorises some expressions using the methods learnt in the previous teaching period and asks children to factorise some more in the worksheet by watching similar lines	Each group will read the similar lines and will frame some more by discussion	Every Individual will do a few more by watcing similar lines
SUMMARY/ SYNOPSIS	Teacher once again writes important key words and definitions and asks children to note down and adopt.	Pupil groups will read and adopt the procedure	Teacher focuses on every individual so that every child is able to learn the concept in successive upcoming practice sessions
WRITING/ EDITING	Teacher gives some questions from Exercise 12.1& 12.2 and asks children to solve those sums and teacher checks the writings of children	One group will check the writings of the other and vice versa	









TEACHING PERIODS : 6 to 10	DIVISION OF ALGEBRAIC EXPRESSIONS, DIVISION OF MONOMIAL BY ANOTHER MONOMIAL, DIVISION OF A POLYNOMIAL BY A MONOMIAL, DIVISION OF ALGEBRAIC EXPRESSIONS CONTINUED (POLYNOMIAL÷POLYNOMIAL)		
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS	Brain storming session invoving children with key words # Division # Monomial # Binomial # Trinomial # Polynomial	* Students read the keywords answer the questions to the teacher (whole class activity)	Every Pupil will read and write the key words in their note books
CONCEPTUAL UNDERSTANDING	Teacher demonstrates the concept of division of polynomials first a monomial by another monomial, next a polynomial by a monomial and finally a polynomial by another polynomial using some exemplary illustrations.	Each group will understand the concepts by participation in the activity	every child learns the concept through the learning acitivity and observation of TLM
SUMMARY	Teacher once again writes important key words and procedures 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
ASSESSMENT	Teacher gives some questions from Try These sections as well as some examples 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

DIVISION OF MONOMIAL BY A MONOMIAL

$7x^2y^2z^2 \div 14xyz = \frac{7.x.x.y.y.z.z}{7.2.x.y.z}$

$= \frac{x.y.z}{2}$

$= \frac{xyz}{2}$

Simplify. $\frac{36x^9 \ominus 12x^5}{4x^4}$

Break apart: $\frac{36x^9}{4x^4} \ominus \frac{12x^5}{4x^4}$

Rewrite: $\frac{36}{4}x^{9-4} - \frac{12}{4}x^{5-4}$

Simplify: $9x^5 - 3x^1 \rightarrow 9x^5 - 3x$

Simplify

$$\frac{2x^2-x-15}{x^2-2x-3}$$

Factor

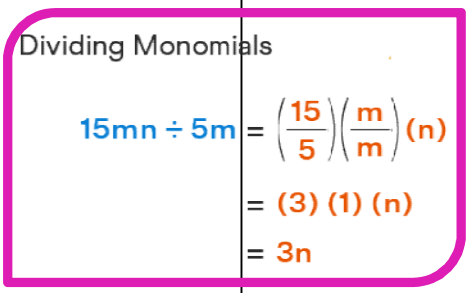
$2x^2-x-15 = (2x+5)(x-3)$

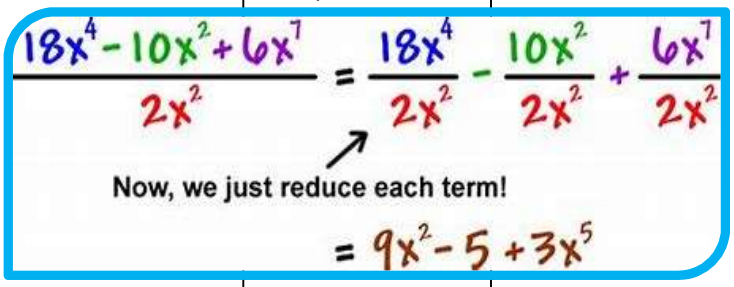
$x^2-2x-3 = (x+1)(x-3)$

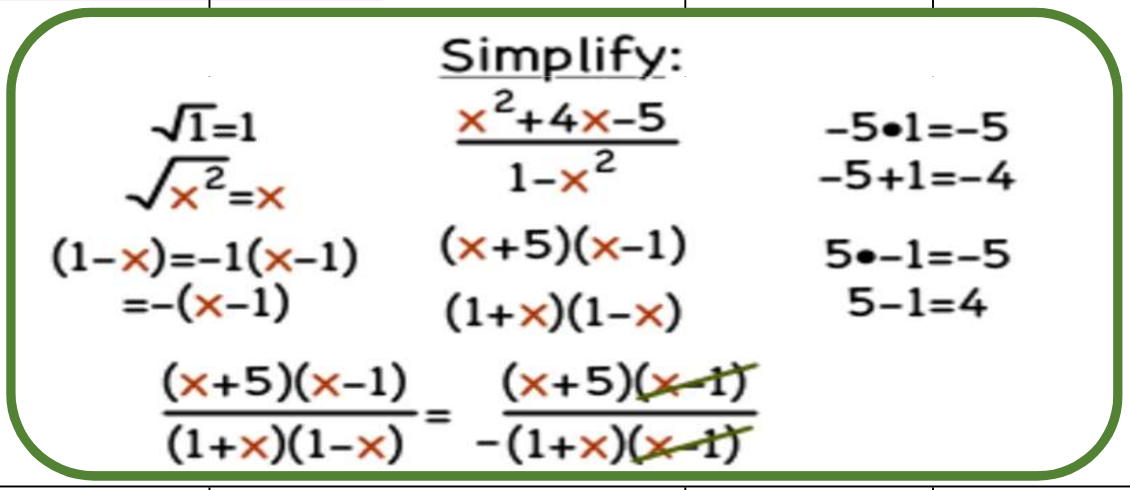
Cancel Common Factors

$$\frac{2x^2-x-15}{x^2-2x-3} = \frac{(2x+5)\cancel{(x-3)}}{(x+1)\cancel{(x-3)}} = \frac{(2x+5)}{(x+1)} \quad x \neq 3$$

PRACTICE PERIODS : 7 to 11	ANOTHER MONOMIAL, DIVISION OF A POLYNOMIAL BY A MONOMIAL, DIVISION OF ALGEBRAIC EXPRESSIONS CONTINUED (POLYNOMIAL÷POLYNOMIAL)		
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 # Division # Monomial # Binomial # Trinomial # Polynomial	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 performs some divisions of polynomials and asks children to do some more by watching similar lines	Each group will read the similar lines and will frame some more by discussion	Every Individual will do a few more by watcing similar lines







SUMMARY/ SYNOPSIS	Teacher once again writes important key words and definitions and asks children to note down and adopt.	Pupil groups will read and adopt the procedure	Teacher focuses on every individual so that every child is able to learn the concept in successive upcoming practice sessions
WRITING/ EDITING	Teacher gives some questions from Exercise 12.3 and asks children to solve those sums and teacher checks the writings of children	One group will check the writings of the other and vice versa	