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COMMON ERRORS COMMITTED BY VIII STANDARD TRIBAL STUDENTS IN MULTIPLICATION AND DIVISION OF ALGEBRAIC EXPRESSIONS



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ABSTRACT

The present study aims to identify the common errors committed by IX standard tribal students in multiplication and division of algebraic expressions. This study was conducted on a sample of 100 IX standard tribal students in Mysore city, Karnataka. The finding reveals that, Common errors committed by VIII standard tribal students in multiplication and division of algebraic expression and Majority of tribal students are found to have done wrong in the application of rule of multiplication and division of indices.

KEYWORDS : Multiplication, Division, Scheduled Tribes.

INTRODUCTION:

Mathematics plays an important role in school learning and also assumes a prominent position in modern education and curriculum. There are several factors of life that require us to examine a new role that mathematics education is to play in the development of citizen's for the scientific, technological and industrial society that we are in the process of creating. In fact, not just mathematics but also a strong foundation of mathematics is needed by almost all the discipline. Thus in these circumstances of increased importance and influence of mathematics, just a computational know-how of mathematics is not enough, the development of concept and ideas of mathematics at the school level is a must.

The education commission (1964-66) recommended that, mathematics as a compulsory subject for students at all levels of school. and the National policy on Education (1986) as also considered the importance of mathematics in general education and suggests that mathematics should be visualized as the vehicle to train a child to think, reason, analyze and articulate logically, apart from being a specific subject.

NEED FOR THE STUDY:

Learning basic mathematics is a necessity in day-to-day life and useful for continuing education in higher classes and courses. The foundations of mathematics are laid in primary school. But often it is found that mathematics remains as a difficult subject for majority of students in general and very tough subject for tribal student in particular. The causes are many, but in addition to individual differences among the tribal and non-tribal students, some other factors influence the mathematical ability and performance of tribal students. In this context it becomes useful to explore the matter scientifically.

Fundamental operations in algebra are the foundation on which the entire structure of mathematics is built. Without the correct knowledge of the fundamental operation students cannot solve any problems in mathematics. Multiplication and division are fundamental operations and have a bearing on further learning of mathematics and also find application in solving H.C.F, L.C.M, and remainder theorem.

Raman. J.(1989) in his study 'impact of remedial teaching programme for common errors committed by students of standard XI in calculus' and reveals that, students committed more conceptual errors followed by computational errors and perceptual errors.

Sindhe (1995) In his study reveals that, a systematic analysis of errors and interpretations helps in classifying and categorizing the errors which needs to be eliminated by planned, remedial instructions.

Siddaraju. R (2005) has conducted a research on 'the defect in geometrical mistake among 9th standard students.' The study revealed that there is no significance different between rural and urban, private and government school of 9th standard students.

Sarasani and Maddini (2010) conducted a study on 'achievement in mathematics of secondary school students in selected variables. And of her findings was that girls performed better than boys in mathematic.

All the above said many research work revealed that, there is a lot of work done by different variable related to mathematics. But a very few research work done on identifying the mathematics errors committed by tribal children. As such the present study is taken up with IX standard tribal students in Mysore District. This study intends to know identify the common errors committed by the tribal students of VIII standard in Multiplication and Division of algebraic expressions.

OBJECTIVES OF THE STUDY:

- 1.To find the common errors committed by IX standard tribal students in Multiplication of algebraic expression.
- 2.To find the common errors committed by IX standard tribal students in Division of algebraic expression.

RESEARCH QUESTIONS:

- 1.What are the common errors committed by IX standard tribal students in Multiplication of algebraic expressions ?
- 2.What are the common errors committed by IX standard tribal students in Division of algebraic expressions ?

OPERATIONAL DEFINITIONS OF KEY TERMS:

Algebra: algebra is a method of calculating by symbols by means of letters employed to represent quantities and signs to represent their relation, therefore forms a kind of generalization arithmetic.

Algebraic expression: algebraic expression is a combination of constants and variables using signs of fundamental operations.

Multiplication: multiplication is simplified form of addition and is the rule or operation by which quantities are multiplied.

Division: division is a process of finding how many times one quantity is contained in another (Chamber's Twentieth Century Dictionary).

Tribes: according to 342 of Indian Constitution, people who are living in foothill areas and have their own way of livings and living in far below poverty line are define as scheduled tribes.

METHODOLOGY:

This study is descriptive in nature involving survey method of research. The data was collected by administering the tool considered for the present study on the sample selected for the study.

Sample of the study: this study was conducted on a sample of 100 IX standard tribal students, out of which 50 were boys and 50 were girls from Government, Private Aided and un-aided schools in Mysore city. The schools were selected randomly, giving representation to types of school and all the tribal students consisting of both boys and girls studying in IX standard were considered as the sample for the study.

Tools used: the tools used for the study was, 'Test for finding errors in Multiplication and Division of algebraic expression' developed by the investigator was used. The test items were systematically analyzed with a view to ensure that all abilities related to multiplication, division were included. Items were scrutinized by experts for their appropriateness to be included in the test to test whether each item would measure what it was meant to measure and provide sufficient evidence for identifying causes for students inability to perform multiplication, division of algebraic expression.

The items were grouped under two parts;

Part A – Problems related to multiplication of algebraic expressions (item no.1 to 11).

Part B – Problems related to division of algebraic expressions (item no 12 to 19).

Statistical Technique used: the data was analysed qualitatively using percentage. For each item in the test different types of errors committed by the tribal students were identified and the percentage of error was computed.

Analysis and Interpretation of the data:

Objective 1: Errors committed by IX standard tribal students in Multiplication of algebraic expression.

Table 1: Item wise analysis of the problem in Multiplication (11 items).

Qn. No.	No. of students done correctly				No. of students done not correctly			
	Boys	%	Girls	%	Boys	%	Girls	%
1	23	46 %	24	48 %	27	54 %	26	52 %
2	21	42 %	25	50 %	29	58 %	25	50 %
3	25	50 %	26	52 %	25	50 %	24	48 %
4	26	52 %	23	46 %	24	48 %	27	54 %
5	24	48 %	28	56 %	26	52 %	22	44 %
6	22	44 %	24	48 %	28	56 %	26	52 %
7	25	50 %	21	42 %	25	50 %	29	58 %
8	24	48 %	22	44 %	26	52 %	28	56 %
9	21	42 %	22	44 %	29	58 %	28	56 %
10	26	52 %	25	50 %	24	48 %	25	50 %
11	24	48 %	25	50 %	26	52 %	25	50 %

Table 1 reveals that, 47(47 %) students have done correct answer, 53(53 %) students were done wrong answer for item no.1; 46 % students have done correct answer, 54 % of students have done wrong answer for item no.2; 51 % of right answer, 49 % of wrong answer for item no.3; 49 % of correct answer, 51 % of wrong answer for item no.4; 52 % of right answer, 48 % of wrong answer for item no.5; 46 % of correct answer, 54 % of wrong answer for item no.6, 7 and 8; 43 % of right answer, 57 % of wrong answer for item no.9; 51 % of correct answer, 49 % of wrong answer for item no.10; 49 % of students have done correct answer, 51 % of students have done wrong answer for item no.11. Hence, it is concluded that majority of tribal students are found to have done wrong in the application of rule of multiplication of indices.

Objective 2: Errors committed by IX standard tribal students in Division of algebraic expression.

Table 2: Item wise analysis of the problem in Division (8 items).

Qn. No.	No. of students done correctly				No. of students done not correctly			
	Boys	%	Girls	%	Boys	%	Girls	%
12	26	52 %	25	50 %	24	48 %	25	50 %
13	24	48 %	25	50 %	26	52 %	25	50 %
14	23	46 %	24	48 %	27	54 %	26	52 %
15	25	50 %	26	52 %	25	50 %	24	48 %
16	21	42 %	25	50 %	29	58 %	25	50 %
17	24	48 %	28	56 %	26	52 %	22	44 %
18	26	52 %	23	46 %	24	48 %	27	54 %
19	25	50 %	21	42 %	25	50 %	29	58 %

Table 2 indicates that, 51 % of students have done correct answer, 49 % of student have done wrong answer for item no.12; 49 % of right answer, 51 % of wrong answer for item no.13; 47% of correct answer, 53 % of wrong answer for item no.14; 51 % of right answer, 49 % of wrong answer for item no.15; 46% of correct answer, 54 % of wrong answer for item no.16; 52 % of right answer, 48 % of wrong answer for item no.17; 49 % correct answer, 51 % of wrong answer for item no.18; and 46% of student have done correct answer, 54 % of students have done wrong answer for item no.19. Hence, it is concluded that majority of tribal students are found to have gone wrong in the application of rule of division of indices.

FINDINGS OF THE STUDY:

- Common errors committed by VIII standard tribal students in multiplication of algebraic expression.
- Majority of tribal students are found to have done wrong in the application of rule of multiplication of indices.
- Common errors committed by VIII standard tribal students in division of algebraic expression.
- Majority of tribal students are found to have done wrong in the application of rule of division of indices.

EDUCATIONAL IMPLICATIONS:

It is evident from the study that, tribal students irrespective of their local type of schools in which they are studying difficulties in learning multiplication, division of algebraic expression. The inability of students to perform the terminal task is due to their lack of mastery of enabling task and basic concepts related to algebraic expressions. This is because of interrelationships among the fundamental operation and sequential nature of learning of mathematics. And teachers have to analyze the subject matter to identify inherent structure/learning hierarchies and follows instructional strategies which enable students to acquire pre-requisite knowledge and skills to learn new knowledge and skills; teacher should take formative evaluation of students learning. Its purpose is to monitor learning by identifying students with learning difficulty and diagnose the cause of such learning difficulties and then adopting suitable remedial instruction to enable students to overcome their difficulties.

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