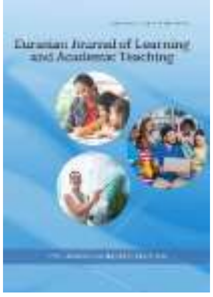

The Use of Innovative Methods of Oral Counting in Developing the Creative Abilities of a Future Primary School Teacher

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ABSTRACT

In this article, formulas have been developed that allow you to verbally calculate the product of some natural numbers, and the importance of solving examples and problems using these formulas in preparing students with creative abilities is revealed.

Keywords: creativity, natural numbers, whole numbers, metod orally calculate

Acceleration of global information flows on a global scale, requirements for the development of creative abilities of participants in the educational process are determined on the basis of individual capabilities and worldview. In particular, the content of the preparation of educational tasks in mathematics lessons, improving the quality of education and activating students are topical problems facing higher education today. In this regard, he explains the need to create pedagogical opportunities aimed at organizing the educational process that develops the creative abilities of students in mathematics lessons. Creativity includes a high level of sensitivity to problems, the ability to make quick decisions in problem situations, intuition, anticipation of results, fantasy, research activities and reflection. Creativity of a person is manifested in his thinking, communication, feelings, individual activities.

One of the main tasks of training primary school teachers with creative abilities is to develop accurate and solid computational skills in the students. The focus is therefore primarily on oral methods of accounting, with oral calculations required wherever possible. It is recommended to resort to written methods of calculation only when working with large numbers, when it is difficult to remember intermediate results. Convenient calculation methods allow you to easily and quickly find the result without performing too complex operations. To do this, the student himself must have a thorough mathematical training, be able to use convenient methods and know their theoretical foundations well.

In the course of mathematics of primary school, sets of natural, integer, rational numbers based on concentric circles are studied. In this case, natural number theory is the core of all other number theory. Arithmetic operations included in the set of natural numbers have the same properties as arithmetic operations included in the set of integers and rational numbers. Also, when solving problems related to the performance of arithmetic operations on rational numbers, it is necessary to know in detail the properties of natural numbers and the arithmetic operations performed on these numbers. From this it can be seen that the complex training of the theory of natural numbers is one of the important links in the training of students with creative abilities. For a detailed study of the theory of natural numbers, it is necessary to know various ways to perform arithmetic operations on these numbers.

With this in mind, we have tried to create various methods for calculating the product of natural numbers. As a result, we have created new methods for quickly and easily calculating the product of some non-negative integers. These methods are reflected in the following theorems.[1]

Theorem 1. Let be arbitrary non-negative integers, if $\overline{np}\overline{nq}p+q=10$ then there is equality

$\overline{np}\cdot\overline{mq}=\overline{[n\cdot(m+1)](p\cdot q)}+\overline{[p\cdot(m-n)]0}$ (1)

Proof. $\overline{np}\cdot\overline{mq}=(10n+p)\cdot(10m+q)=100nm+10nq++10mp++pq=100nm+$ $\overline{np}\cdot\overline{(n+k)q}=\overline{[n\cdot(n+k+1)](p\cdot q)}+\overline{(p\cdot k)0}$.

To prove this consequence, it is sufficient to replace m with its quotient value $n+k$ in theorem 1.

Theorem 2. Let n and m be arbitrary non-negative integers, and then equality (1) is valid.$\overline{n1}\cdot\overline{m9}=\overline{[n\cdot(m+1)]09}+\overline{(m-n)0}$

In here.$\overline{n1}=n\cdot 10+1\overline{[n\cdot(m+1)]09}=\big(n(m+1)\big)\cdot 100+9$

Proof.

To prove formula (2), it is sufficient to replace m in formula (1) with $n+k$.

You can get various useful formulas for calculating the product of natural numbers by substituting certain integers instead of k in

$\overline{n1}\cdot\overline{n9}=\overline{[n\cdot(n+1)]09}$ (3)

$\overline{n1}\cdot\overline{(n+1)9}=\overline{[n\cdot(n+2)]19}$ (4)

$\overline{n1}\cdot\overline{(n+2)9}=\overline{[n\cdot(n+3)]29}$ (5)

$\overline{n1}\cdot\overline{(n+3)9}=\overline{[n\cdot(n+4)]39}$ (6)

$\overline{n1}\cdot\overline{(n+4)9}=\overline{[n\cdot(n+5)]49}$ (7)

Examples.

1. $41\cdot 49=\overline{[4\cdot(4+1)]09}=\overline{[20]09}=2009$
2. $31\cdot 49=\overline{[3\cdot(3+2)]19}=\overline{[15]19}=1519$
3. $51\cdot 79=\overline{[5\cdot(5+3)]29}=\overline{[40]29}=4029$

$10nq+10np+10mp-10np+pq=100nm++10n(q+p)+p\cdot q+10\cdot p(m-n)=100nm+10n\cdot 10+pq+$
$+p(m—n)10=n(m+1)100+pq+\overline{[p\cdot(m-n)]0}=\overline{[n\cdot(m+1)](pq)}+$
$+\overline{[p\cdot(m-n)]0}$. theorem is proved.

Consequence 1. Let n and $n+k$ be arbitrary integers of non-negative numbers, and *let* p and q be numbers whose sum is 10. Then there is equality.

$$\overline{n1}\cdot\overline{m9}=(10n+1)\cdot(10m+9)$$
$$=100nm+90n+10m+9=$$
$$=100nm+90n+10n+10m-10n+9$$
$$=100nm+100n+(m-n)\cdot 10+$$
$+9=\overline{[n\cdot(m+1)]09}+\overline{(m-n)0}$. The theorem is proven.

Consequence 2. Let n and $n+k$ be arbitrary integers of non-negative numbers. Then there is equality

$\overline{n1}\cdot\overline{(n+k)9}=\overline{[n\cdot(n+k+1)]09}+\overline{k0}$ (2).

formula (2). Actually, instead of k in the formula (2), we put the numbers 0,1,2,3,4, and then calculate the sums formed in the right part of the equation and get the following formulas.

4. $21\cdot 59=\overline{[2\cdot(2+4)]39}=\overline{[12]39}=1239$
5. $=41\cdot 89\overline{[4\cdot(4+5)]49}=\overline{[36]49}=3649$.

Theorem 3. Let n and m be arbitrary non-negative integers.

Then equality is fair

$\overline{n2}\cdot\overline{m8}=\overline{[n\cdot(m+1)]16}+\overline{[2\cdot(m-n)]0}$ (8)[2]

Proof.

$\overline{n2}\cdot\overline{m8}=(10\cdot n+2)\cdot(10\cdot m+8)=100\cdot n\cdot m+80\cdot n+20\cdot\cdot m+16=100\cdot n\cdot m+80\cdot n+20\cdot n-20\cdot n+20\cdot m+16=100\cdot n\cdot m++100\cdot n+2\cdot(m-n)\cdot 10+16=100\cdot n\cdot(m+1)+16+\overline{[2\cdot(m-n)]0}=\overline{[n\cdot(m+1)]16}+\overline{[2\cdot(m-n)]0}$.

[1] B.K.Mamadaliev. Bўlazhak boshlanғich synf ўқituvchilarining creative қobiliyatiny rivozhlantyrishda tўplamlar nazariyasi tadbiқlariga doir masalalar echish // Scientific progress. ISSN: 2181-1601.vol 4. ISSUE 1|2023.

[2] Mamadaliyev Kamildjan Bazarbayevich, Mamadaliyev Happy Kamildjanovich. *Use of Elements of Predicate Algebra in Solving Proof Problems* // Central asian journal of theoretical and applied sciences. Volume: 02 Issue: 08 | Aug 2021 ISSN: 2660-5317.

The theorem is proven.

Examples.

6. $.32 \cdot 78 = \overline{[3 \cdot (7+1)]16} + \overline{[2 \cdot (7-3)]0} = \overline{[24]16} + \overline{[8]0} = 2416 + +80 = 2496$

7. $.72 \cdot 38 = \overline{[7 \cdot (3+1)]16} + \overline{[2 \cdot (3-7)]0} = 2816 - 80 = 2736$

From theorem (3) follows.

Consequence 3. Let n and n+k be arbitrary non-negative integers. Then there is equality.

$$\overline{n2} \cdot \overline{(n+k)8} = \overline{[n \cdot (n+k+1)]16} + \overline{(2 \cdot k)0} \quad (9)$$

In the formula (9), we put the numbers 0,1,2,3,4 in place of the number 0,1,2,3,4, and then calculate the sums and half of the following formulas.

$$\overline{n2} \cdot \overline{n8} = \overline{[n \cdot (n+1)]16} \quad (10)$$

$$\overline{n2} \cdot \overline{(n+1)8} = \overline{[n \cdot (n+2)]36} \quad (11)$$

$$\overline{n2} \cdot \overline{(n+2)8} = \overline{[n \cdot (n+3)]56} \quad (12)$$

$$\overline{n2} \cdot \overline{(n+3)8} = \overline{[n \cdot (n+4)]76} \quad (13)$$

$$\overline{n2} \cdot \overline{(n+4)8} = \overline{[n \cdot (n+5)]96} \quad (14)$$

Examples.

8. $82 \cdot 88 = \overline{(8 \cdot 9)16} = 7216$

9. $82 \cdot 98 = \overline{(8 \cdot 10)36} = 8036$

10. $.92 \cdot 118 = \overline{(9 \cdot 12)56} = 10856$

From these examples it can be seen that the use of the obtained formulas allows in most cases to perform the multiplication operation orally. If students are taught to apply the above formulas to solving problems and examples, then creative abilities are developed.

References

1. K.B.Mamadaliyev, B.K.Mamadaliyev. The Use of Logic Science Elements in the Preparation of Students with Creative Abilities // International Journal of Trend in Scientific Research and Development. ISSN: 2456-6470, Volume-5 | Issue-6 , October 2021.
2. Mamadaliyev Kamildjan Bazarbayevich, Mamadaliyev Baxtiyor Kamildjanovich. *Use of Elements of Predicate Algebra in Solving Proof Problems* // Central asian journal of theoretical and applied sciences. Volume: 02 Issue: 08 | Aug 2021 ISSN: 2660-5317.
3. K.B.Mamadaliyev, B.K.Mamadaliyev. // *Solving problems of applications of collection theory.* academicia globe: Inderscience Research. **ISSN:** 2776-1010 Volume 2, Issue 5, May, 2021.
4. Б.К.Мамадалиев. Бўлажак бошланғич синф ўқитувчиларининг креатив қобилиятини ривожлантиришда тўпламлар назарияси тадбиқларига доир масалалар ечиш // Scientific progress. ISSN: 2181-1601.vol 4. ISSUE 1|2023.