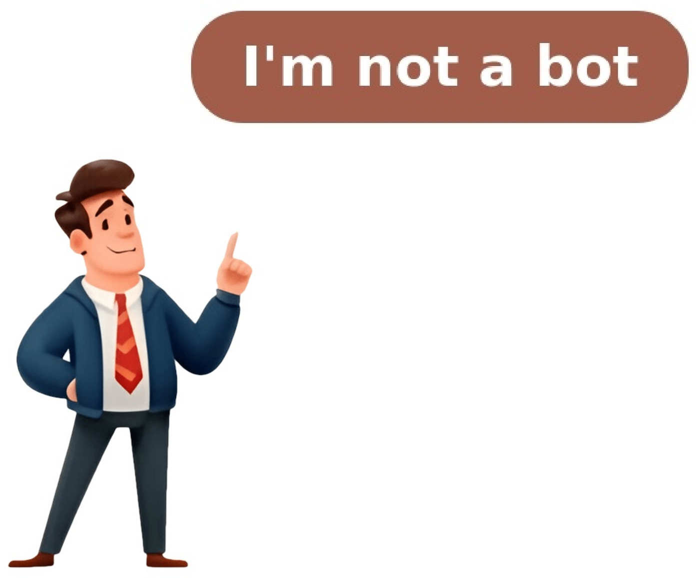
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Example of associative property

The associative property, or the associative law in maths, states that while adding or multiplying numbers, the way in which numbers are grouped by brackets (parentheses), does not affect their sum or product. The associative property is applicable to addition and multiplication. Let us learn more about the associative property, along with some associative property examples. What is the Associative Property? According to the Associative property, when 3 or more numbers are added or multiplied, the result (sum or the product) remains the same even if the numbers are grouped in a different way. Here, grouping is done with the help of brackets. This can be expressed as, a × (b × c) = (a × b) × c and a + (b + c) = (a + b) + c. Associative Property Definition The associative law which applies only to addition and multiplication states that the sum or the product of any 3 or more numbers is not affected by the way in which the numbers are grouped by parentheses. In other words, if the same numbers are grouped in a different way for addition and multiplication, their result remains the same. The formula for the associative property of addition and multiplication is expressed as: Let us discuss in detail the associative property of addition and multiplication with examples. Associative Property of Addition According to the associative property of addition, the sum of three or more numbers remains the same irrespective of the way the numbers are grouped. Suppose we have three numbers: a, b, and c. For these, the associative property of addition will be expressed with the following formula: Associative Property of Addition Formula: (A + B) + C = A + (B + C) Let us understand this with the help of an example. Example: (1 + 7) + 3 = 1 + (7 + 3) = 11. If we solve the left-hand side, we get, 8 + 3 = 11. Now, if we solve the right-hand side, we get, 1 + 10 = 11. Hence, we can see that the sum remains the same even when the numbers are grouped in a different way. Associative Property of Multiplication The associative property of multiplication states that the product of three or more numbers remains the same irrespective of the way the numbers are grouped. The associative property of multiplication can be expressed with the help of the following formula: Associative Law of Multiplication Formula (A × B) × C = A × (B × C) Let us understand this with the following example. Example: (1 × 7) × 3 = 1 × (7 × 3) = 21. When we solve the left-hand side, we get 7 × 3 = 21. Now, when we solve the right-hand side, we get 1 × 21 = 21. Therefore, it can be seen that the product of the numbers remains the same irrespective of the different grouping of numbers. Associative Property of Subtraction The associative property does not work with subtraction. This means if we try to apply the associative law to subtraction, it will not work. For example, (7 - 1) - 3 is not equal to 7 - (1 - 3). If we solve the left-hand side, we get, 6 - 3 = 3. Now, if we solve the right-hand side, we get, 7 - (-2) = 9. Hence, we can see there is no associative property of subtraction. Verification of Associative Law Let us try to justify how and why the associative property is only valid for addition and multiplication operations. We will apply the associative law individually on the four basic operations. For Addition: The associative law in Maths for addition is expressed as (A + B) + C = A + (B + C). So, let us substitute this formula with numbers to verify it. For example, (1 + 4) + 2 = 1 + (4 + 2) = 7. Therefore, the associative property is applicable to addition. For Subtraction: Let us try the associative property formula in subtraction. This can be expressed as (A - B) - C ≠ A - (B - C). Now, let us verify this formula by substituting numbers in this. For example, (1 - 4) - 2 ≠ 1 - (4 - 2) i.e., -5 ≠ -1. Therefore, we say that the associative property is not applicable to subtraction. For Multiplication: The associative law for multiplication is given as (A × B) × C = A × (B × C). For example, (1 × 4) × 2 = 1 × (4 × 2) = 8. Therefore, we can say that the associative property is applicable to multiplication. For Division: Now, let us try the associative property formula for division. This can be expressed as (A ÷ B) ÷ C ≠ A ÷ (B ÷ C). For example, (9 ÷ 3) ÷ 2 ≠ 9 ÷ (3 ÷ 2) = 3/2 ≠ 6. Therefore, we can see that the associative property is not applicable to division. ☛ Related Articles Example 1: If 3 × (6 × 4) = 72, then find the product of (3 × 6) × 4 using the associative property. Solution: Since multiplication satisfies the associative property formula, (3 × 6) × 4 = 3 × (6 × 4) = 72 Example 2: Solve for x using the associative property formula: 2 + (x + 9) = (2 + 5) + 9 Solution: Since addition satisfies the associative property, (2 + 5) + 9 = 2 + (x + 9) = (2 + x) + 9. So, the value of x is 5. Example 3: If 2 × (3 × 5) = 30, find the product of (2 × 3) × 5 using the associative property. Solution: The associative property formula is expressed as (A × B) × C = A × (B × C) Given = 2 × (3 × 5) = 30 Using the associative property formula, we can evaluate (2 × 3) × 5. To verify: (2 × 3) × 5 = 30 or not, first, let us solve the terms inside parentheses and then multiply it with the number given outside. = 6 × 5 = 30 Hence, 2 × (3 × 5) = (2 × 3) × 5 = 30. View More > go to slidego to slidego to slide Great learning in high school using simple cues Indulging in rote learning, you are likely to forget concepts. With Cuemath, you will learn visually and be surprised by the outcomes. Book a Free Trial Class FAQs on Associative Property The associative property or the associative law in math is the property of numbers according to which, the sum or the product of three or more numbers does not change if they are grouped in a different way. In other words, if we add or multiply three or more numbers we will obtain the same answer irrespective of the order of the parentheses. The associative property in math is only applicable to two primary operations, that is, addition and multiplication. What is the Associative Property of Addition? The associative property formula of addition says that the sum of three or more numbers remains the same irrespective of the way the numbers are grouped. The associative property formula which applies to addition is expressed as (A + B) + C = A + (B + C). What is the Associative Property of Multiplication? The associative property formula for multiplication says that the product of three or more numbers remains the same irrespective of the way the numbers are grouped. The associative property formula for multiplication is expressed as (A × B) × C = A × (B × C). What is the Associative Property Formula for Rational Numbers? The associative property formula for rational numbers can be expressed as (A + B) + C = A + (B + C) in case of addition, and, (A × B) × C = A × (B × C) in case of multiplication. Here, the values of A, B, and C are in form of p/q, where q ≠ 0. The associative property formula is only valid for addition and multiplication. Which Two Operations Satisfy the Condition of the Associative Property? The two operations which satisfy the condition of the associative property are addition and multiplication. This means that the associative property is applicable to addition and multiplication. Give an Example of the Associative Property of Multiplication. The associative property of multiplication can be understood with the help of an example. Let us multiply any three numbers (4 × 6) × 10, we get the product as 24 × 10 = 240. Let us group these numbers as 4 × (6 × 10), we still get the product as 4 × 60 = 240. This verifies the associative property of multiplication according to which the product of the numbers remains the same even if they are grouped in a different way. What is an Example of the Associative Law of Addition? The associative law of addition can be understood with the help of an example of any three numbers. Let us add (4 + 2) + 10, we get the sum as 6 + 10 = 16. Now, if we group these numbers as 4 + (2 + 10), we still get the sum as 4 + 12 = 16. This proves the associative property of addition which states that the sum of the numbers remains the same even if they are grouped in a different way. How is the Associative Property Different From the Commutative Property? The associative property states that the sum or the product of three or more numbers does not change if they are grouped in a different way. This associative property is applicable to addition and multiplication. It is expressed as, (A + B) + C = A + (B + C) and (A × B) × C = A × (B × C). The commutative property states that changing the order of the operands does not change the result of the arithmetic operation. This commutative property is applicable to addition and multiplication. It is expressed as, A × B = B × A and A + B = B + A. What is the Associative Law and the Distributive Law? The Associative law states that no matter how we group the numbers in addition and multiplication, the sum or the product remains the same. For example, if we add (5 + 7) + 10, we get 22. Now if we change the grouping of the numbers as 5 + (7 + 10), we still get 22. This is what the Associative law states. According to the Distributive law, an expression that is given in the form of A (B + C) can be solved as A × (B + C) = AB + AC. This distributive law is also applicable to subtraction and is expressed as, A (B - C) = AB - AC. This means operand A is distributed between the other two operands. How does the Associative Law work? The Associative law is applicable to addition and multiplication. It says that even if the grouping of numbers is changed, that does not affect the sum or the product. For example, if we multiply 5 × (2 × 3), we get 5 × (6) = 30. Now, if we group the numbers as (5 × 2) × 3, we again get (10) × 3 = 30. Now, let us apply this law to addition. For example, if we add 8 + (3 + 4), we get 15. Now, if we change the grouping of these numbers as (8 + 3) + 4, we still get 15. This is how the Associative law works on addition and multiplication. Is there any Associative Property of Division? No, the associative property is not applicable to division and subtraction. Let us try the associative property formula for division. This can be expressed as (A ÷ B) ÷ C ≠ A ÷ (B ÷ C). For example, (12 ÷ 6) ÷ 2 ≠ 12 ÷ (6 ÷ 2). Therefore, we can see that the associative property is not applicable to division. The associative law is only applicable to addition and multiplication. The associative property tells us that that we can change the grouping of factors (in multiplication) or addends (in addition) in an expression without changing the end result.Typically, we use parentheses to associate, since they come first in the order of operations (PEMDAS). For example:The expression15×2×9= 15\times 2\times 9= 15×2×9=Can be associated as(15×2)×9=15×(2×9)=270 \left(15×2\right)×9=15×\left(2×9\right)=270 (15×2)×9=15×(2×9)=270 Question 1 Question 2 Question 3 Question 4 Question 5 6:2+9−4= 6:2+9-4= 6:2+9−4= According to the order of operations, we first solve the division exercise, and then the subtraction:(6:2)+9−4= (6:2)+9-4= (6:2)+9−4=6:2=3 6:2=3 6:2=3Now we place the subtraction exercise in parentheses:3+(9−4)= 3+(9-4)= 3+(9−4)=3+5=8 3+5=8 3+5=8 3×5×4= 3\times5\times4= 3×5×4= According to the order of operations, we must solve the exercise from left to right.But, this can leave us with awkward or complicated numbers to calculate.Since the entire exercise is a multiplication, you can use the associative property to reorganize the exercise:3*5*4=We will start by calculating the second exercise, so we will mark it with parentheses:3*(5*4)=3*(20)=Now, we can easily solve the rest of the exercise:3*20=60 According to the order of operations, we solve the exercise from left to right:3+2=5 3+2=5 3+2=55−11=−6 5-11=-6 5−11=−6 4+5+1−3= 4+5+1-3= 4+5+1−3= According to the order of operations, we solve the exercise from left to right:4+5=9 4+5=9 4+5=99+1=10 9+1=10 9+1=1010−3=7 10-3=7 10−3=7 According to the order of operations, we solve the exercise from left to right since the only operation in the exercise is division:24:8=3 24:8=3 24:8=33:3=1 3:3=1 3:3=1 Question 1 Question 2 Question 3 Question 4 Question 5 −5+2−6:2= -5+2-6:2= −5+2−6:2= According to the rules of the order of operations, we first solve the division exercise:6:2=3 6:2=3 6:2=3Now we get the exercise:−5+2−3= -5+2-3= −5+2−3=We solve the exercise from left to right:−5+2=−3 -5+2=-3 −5+2=−3−3=−6 -3-3=-6 −3−3=−6 According to the rules of the order of operations, we first solve the division exercise:9:3=3 9:3=3 9:3=3Now we obtain the exercise:3−3=0 3-3=0 3−3=0 4×2−5+4= 4\times2-5+4= 4×2−5+4= According to the rules of the order of operations, we first solve the multiplication exercise:4×2=8 4\times2=8 4×2=8Now we obtain the exercise:8−5+4= 8-5+4= 8−5+4=We solve the exercise from left to right:8−5=3 8-5=3 8−5=33+4=7 3+4=7 3+4=7 12×5×6= 12\times5\times6= 12×5×6= According to the rules of the order of operations, we solve the exercise from left to right:12×5=60 12\times5=60 12×5=6060×6=360 60\times6=360 60×6=360 94+12+6= 94+12+6= 94+12+6= According to the rules of the order of operations, you can use the substitution property and organize the exercise in a more convenient way for calculation:94+6+12= 94+6+12= 94+6+12=Now, we solve the exercise from left to right:94+6=100 94+6=100 94+6=100100+12=112 100+12=112 100+12=112 Question 1 Question 2 Question 3 Question 4 Question 5 According to the rules of the order of operations, you can use the substitution property and start the exercise from right to left to calculate comfortably:8+12=20 8+12=20 8+12=20Now we obtain the exercise:7+20=27 7+20=27 7+20=27 7×5×2= 7\times5\times2= 7×5×2= According to the rules of the order of operations, you can use the substitution property and start the exercise from right to left to comfortably calculate:5×2=10 5\times2=10 5×2=107×10=70 7\times10=70 7×10=70 First, solve the left exercise since adding the numbers together will give us a round number:8+2=10 8+2=10 8+2=10Now we have an easier exercise to solve:10+7=17 10+7=17 10+7=17 Answer 13+5+5= 13+5+5= 13+5+5= ? First, solve the right-hand exercise since adding the numbers together will give us a round number:5+5=10 5+5=10 5+5=10Now we have an easier exercise to solve:13+10=23 13+10=23 13+10=23 38+2+8= 38+2+8= 38+2+8= ? First, solve the right-hand side of the exercise since adding these numbers together will give you a round number:2+8=10 2+8=10 2+8=10This leaves you with an easier exercise to solve:38+10=48 38+10=48 38+10=48 By rohit.pandey1|Updated on 15 Apr 2025, 12:45 ISTLearn about the associative property, its mathematical principles, practical applications in physics, finance, computing, and everyday life. Discover how easily calculations may be made simpler by grouping numbers.Consider organizing a set of numbers for fast mental calculations or breaking down difficult equations. The associative property is in play when you see that altering how you arrange the numbers doesn't affect the outcome! This basic principle makes computations simpler and more effective, whether you're solving physics equations, programming algorithms, or figuring out food budgets.Fill out the form for expert academic guidanceThe following topics will be covered in this article:What is the associative property?How associative property is used in addition and multiplication?What distinguishes associative property from other properties of mathematics?Where in real life is associative property idea used?As the name suggests, associative refers to grouping. The word "associate" is where the term "associative" originates. The association property can be used for addition and multiplication, two fundamental mathematical operations. Usually, this applies to more than two integers.Unlock the full solution & master the conceptGet a detailed solution and exclusive access to our masterclass to ensure you never miss a conceptWhen three or more numbers are added or multiplied, the outcome (sum or the product) stays the same regardless of how the numbers are arranged, according to the associative property.The associative property of addition states that no matter how the numbers are arranged, the sum of three or more of them stays the same. Assume that p, q, and r are three numbers. For these, the following formula will be used to express the associative property of addition: Associative Property: Definition, Explanation & Real-World Applications Associative Property of Addition Formula:(P + Q) + R = P + (Q + R)(2 + 8) + 3 = 2 + (8 + 3) = 13 10 + 3 = 13 is the result of solving the left-hand side. We now obtain 2 + 11 = 13 if we solve the right-hand side. As a result, even when the numbers are classified differently, the sum stays the same.Ready to Test Your Skills?Check Your Performance Today with our Free Mock Tests used by Toppers!The product of three or more numbers stays the same regardless of how the numbers are arranged, according to the associative feature of multiplication. The following formula can be used to express the associative property of multiplication:Associative Property of Multiplication Formula(P × Q) × R = P × (Q × R) Start Your JEE/NEET Prep at Just ₹1999 / month - Limited Offer! Check Now!(2 × 4) × 3 = 2 × (4 × 3) = 24 8 × 3 = 24 is the result of solving the left-hand side. Now, 2 × 12 = 24 is the result of solving the right-hand side. As a result, it is evident that the product of the numbers is constant regardless of how the numbers are grouped.The associative property does not work with subtraction and division. This means if we try to apply the associative law to subtraction, it will not work.create your own testYOUR TOPIC, YOUR DIFFICULTY, YOUR PACE(8 - 4) - 3 is not equal to 8 - (4 - 3). If LHS is solved, we get, 2 - 3 = -1. If RHS is solved, we get, 8 - (1) = 7. Hence, associative property is not applicable to subtraction.(24 ÷ 4) ÷ 3 is not equal to 24 ÷ (4 ÷ 3). If LHS is solved, we get, 6 ÷ 3 = 2. Now, if RHS is solved, we get, 24 ÷ (4 ÷ 3) ≠ 2. Hence, associative property is not applicable for division.The commutative property states that no matter how two numbers are arranged, the outcome of multiplication or addition stays the same. Commutative property involves two numbers, while associative property involves more than two numbers. While the associative property deals with altering how numbers are grouped, the commutative property deals with altering the order of numbers.Example 1: If (10 × 20) × 15 = 3000, then use associative property to find (15 × 10) × 20.Solution: According to the associative property of multiplication, (10 × 20) × 15 = (15 × 10) × 20.Given that (10 × 20) × 15 = 3000, (15 × 10) × 20 = 3000.Example 2: Check whether the associative property of addition is implied in the following equation. 50 + (40 + 10) = (50 + 40) + 10Solution: LHS = 50 + (40 + 10) = 50 + 50 = 100RHS = (40 + 50) + 10 = 50 + 50 = 100 = LHSThus, the associative property of addition is implied in this equation.Test yourself with these problems:Complete the following equation: 3 × (… × 4) = (3 × 2) × …Fill in the blanks: 12 + 9 + … = 9 + 5 + …If 4 × (6 × 5) = 120, find the product of (4 × 6) × 5 using the associative property.Solve for y using the associative property formula: 3 + (y + 8) = (3 + 5) + 8.Mental Math & Quick Calculations - Grouping numbers strategically while adding or multiplying makes mental math faster and more efficient.Computer Science & Programming - Algorithms use the associative property to optimize calculations and improve processing speed.Banking & Finance - Interest calculations and financial transactions rely on associative grouping for accurate computations.Physics & Engineering - The associative property helps simplify force equations, electrical circuits, and structural calculations.The associative property is an essential mathematical rule that simplifies calculations across various fields, from computing to engineering. By understanding and applying this property, you can solve problems more efficiently. Associative Property states that when adding or multiplying numbers, the way they are grouped by brackets (parentheses) does not affect the sum or product. It is also known as the Associative Law. This property applies to both multiplication and addition.Let's learn about Associative Property in detail, including the Property of Addition and Multiplication, along with some solved examples.What is Associative Property?The associative law states that the sum or product of any three or more numbers is unaffected by how the numbers are grouped by parenthesis. It applies only to addition and multiplication.In other words, even if the same numbers are grouped differently for addition and multiplication, the outcome will be the same.Associative Property DefinitionThe associative property is a fundamental principle in mathematics that applies to operations like addition and multiplication. It states that the way in which numbers are grouped in an operation does not change the result, as long as the sequence of the numbers remains the same.Associative Property FormulaAssume we have three numbers: a, b, and c. So formula of Associative property is,(A + B) + C = A + (B + C)and(A × B) × C = A × (B × C)Associative and Commutative Property of Addition and MultiplicationThe associative and commutative properties are fundamental properties in mathematics that apply to both addition and multiplication. These properties allow for flexibility in computations, making arithmetic operations easier to manage.Associative Property of AdditionAs per the associative property of addition or Associative Law of Addition, the sum of three or more numbers remains the same regardless of how the numbers are grouped. Assume we have three numbers: a, b, and c. So, formula of Associative property is,(A + B) + C = A + (B + C)Associative Property of Addition ExampleExample: Verify Associative Law of Addition for 5, 8 and 6Solution:We have (A + B) + C = A + (B + C)Suppose a= 5 , b = 8 , c = 6{(5 + 8) + 6} = {5 + (8 + 6)}{13 + 6} = {5 + 14}19 = 19Hence ProvedIt does not matter how the numbers are grouped , the sum of three numbers will remain same .Associative Property of MultiplicationAs per associative property of multiplication, product of three or more numbers remains the same regardless of how the numbers are grouped. Assume we have three numbers: a, b, and c. The following formula can be used to express the associative property of multiplication(A × B) × C = A × (B × C)Associative Property of Multiplication ExampleExample: Verify if (5 × 8) × 6 = 5 × (8 × 6)Solution: We have (A × B) × C = A × (B × C)Here we suppose : a = 5 , b = 8 , c = 6 {(5 × 8) × 6 } = {5 × (8 × 6)}{40 × 6} = {5 × 48}240 = 240Hence ProvedIt does not matter how numbers are grouped, product of three numbers will remain sameCommutative PropertyThe commutative property states that the order of the numbers involved in the operation does not affect the result. This property applies to both addition and multiplication.Commutative Property of Addition:a + b = b + aFor example, 3 + 5 = 5 + 3Commutative Property of Multiplication:a × b = b × aFor example, 4 × 6 = 6 × 4Associative Property is not valid for Subtraction i.e (A - B) - C ≠ A - (B - C). Let's see this with an example.Example: Check if (15 - 7) - 5 = 15 - (7 - 5)Solution:Suppose , a = 15 , b = 7 , c = 5LHS = (A - B) - C = (15 - 7) - 5 = 8 - 5 = 3RHS = A - (B - C) = 15 - (7 - 5) = 15 - 2 = 13Here, 3 ≠ 13⇒ LHS ≠ RHSHence, (A - B) - C ≠ A - (B - C)Hence proved that Associative property is not applicable in case of subtraction Associative Property of DivisionAssociative Property is not valid for Division i.e. (A ÷ B) ÷ C ≠ A ÷ (B ÷ C). Let's see this with an exampleExample: Check if {(9 ÷ 3) ÷ 2} = {9 ÷ (3 ÷ 2)}Solution:Let a = 9, b = 3 and c = 2LHS = (a ÷ b) ÷ c = (9 ÷ 3) ÷ 2 = 3/2RHS = a ÷ (b ÷ c) = 9 ÷ (3 ÷ 2) = 9 x 2/3 = 6Here, 3/2 ≠ 6⇒ LHS ≠ RHSHence, (A ÷ B) ÷ C ≠ A ÷ (B ÷ C)Hence proved associative property is not applicable for division method Associative Property of Matrix MultiplicationAssociative Property is also valid for multiplication of matrices. We know that matrices are rectangular arrays of numbers. When three matrices are multiplied their product remains same irrespective of pair of matrices taken for multiplication.Let's say we have three matrices A, B and C then associative property of matrix multiplication is given as (A × B) × C = A × (B × C). Let's understand it with an example A = \begin{bmatrix} 2 & 3 \\ 1 & 4 \end{bmatrix}, B = \begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix}, C = \begin{bmatrix} 9 & 10 \\ 11 & 12 \end{bmatrix} Let Check Associative for above given three matricesLHS We have (A × B) × C = (A \cdot B) \cdot C = \left(\begin{bmatrix} 2 & 3 \\ 1 & 4 \end{bmatrix} \cdot \begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix}\right) \cdot \begin{bmatrix} 9 & 10 \\ 11 & 12 \end{bmatrix} \begin{bmatrix} 31 & 36 \\ 33 & 38 \end{bmatrix} \cdot \begin{bmatrix} 9 & 10 \\ 11 & 12 \end{bmatrix} = \begin{bmatrix} 31 \cdot 9 + 36 \cdot 11 & 31 \cdot 10 + 36 \cdot 12 \\ 33 \cdot 9 + 38 \cdot 11 & 33 \cdot 10 + 38 \cdot 12 \end{bmatrix} = \begin{bmatrix} 675 & 742 \\ 715 & 786 \end{bmatrix} On RHS we have A × (B × C) =A \cdot (B \cdot C) = \begin{bmatrix} 2 & 3 \\ 1 & 4 \end{bmatrix} \cdot \left(\begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix} \cdot \begin{bmatrix} 9 & 10 \\ 11 & 12 \end{bmatrix}\right) = \begin{bmatrix} 2 & 3 \\ 1 & 4 \end{bmatrix} \cdot \begin{bmatrix} 111 & 122 \\ 151 & 166 \end{bmatrix} = \begin{bmatrix} 2 \cdot 111 + 3 \cdot 151 & 2 \cdot 122 + 3 \cdot 166 \\ 1 \cdot 111 + 4 \cdot 151 & 1 \cdot 122 + 4 \cdot 166 \end{bmatrix} = \begin{bmatrix} 675 & 742 \\ 715 & 786 \end{bmatrix} Hence, we see that product of matrices on both LHS and RHS are equal. Hence, we say that the Matrix Multiplication Follows Associative Property.Learn More : Matrix MultiplicationAssociative and Commutative PLet's discuss the key differences between both Associative and Commutative Property.Associative vs Commutative PropertyCommutative PropertyAssociative PropertyCommutative property derives from the phrase "commute," which means "move around," and refers to the ability to switch numbers that are being added or multiplied regardless of their order. Term "associative" derives from the word "associate". The association property may be utilized for performing basic mathematical operations such as addition and multiplication. This is usually applicable to more than two numbers. Formula of Commutative Property is : (a+ b) = (b + a) formula of Associative property is :(A + B) + C = A + (B + C)Formula of Commutative Property is :(a × b) = (b × a) Associative Property of Multiplication : (A × B) × C = A × (B × C)Related Articles:Distributive PropertyAdditive InverseProperties of Real NumbersAssociative Property ExamplesExample 1: If 2 × (3 × 4) = 24, then find the product of (2 × 3) × 4 using the associative property.Solution:As we know Associative property is applicable for multiplication, It states that product of three or more numbers remains the same regardless of how the numbers are grouped (2 × 3) × 4 = 2 × (3 × 4) ⇒ 24 = 24Example 2: Prove the associative property of multiplication for the whole numbers 5, 0, and 15.Solution:According to the associative property of multiplication:(A × B) × C = A × (B × C)⇒ 5 × (0 × 15) = (5 × 0) × 15⇒ 5 × 0 = 0 × 15⇒ 0 = 0Hence, ProvedExample 3: Solve the equation 12 + (10 + 2) using the Associative property.Solution:We know that Associative property are:(A + B) + C = A + (B + C)So, (12 + 10) + 2 = 12 + (10 + 2) ⇒ 22 + 2 = 12 + 12⇒ 24 = 24Practice Questions on Associative Property1. If (30 × 10) × 15 = 4500, then use associative property to find (15 × 30) × 10.2. Check whether the associative property of addition is applicable in the given equations or not .5 + (60 + 10) = (5 + 60) + 1055 + (30 + 20) = (55 + 30) + 253. Prove that : 2 ×(2×5) = (2×2)×54. By using these numbers 12 × 14 × 15 , Proof Associative Property of Multiplication .