1. Name the sets of numbers to which each number belongs:

a. rational number b. real number c. real number d. integer

1. Explain the associative property of addition. Write an example to demonstrate it.

The associative property of addition says that it doesn't matter how we group the added numbers (i.e. which we calculate first)

**(a + b) + c  =  a + (b + c)**

1. What is meant by the Multiplicative Identity Property?

Multiplying a real number by 1 leaves the real number unchanged. I.e. the answer is the original number.

**a × 1 = a**

1. Can we apply associative property on division?

No, because division isn’t associative. Addition and multiplication are associative. I.e. a ÷ b does not equal b ÷ a

**PROBLEM 1:**

**Take each example** and first decide if the left and right sides of the equal signs are equivalent. That would mean the equals sign makes the statement true. Then, decide if the commutative property was used in the example.

|  |  |  |
| --- | --- | --- |
| **Example** | **Are the sides equivalent?** | **Does it use the Commutative Property?** |
| 2 + 4 = 4 + 2 | YES | YES |
| 2 × 5 = 5 × 2 | YES | YES |
| 4 – 2 = 2 – 4 | NO | NO |
| 2 ÷ 6 = 6 ÷ 2 | NO | NO |
| 2 × ¼ = ¼ × 2 | YES | YES |

Take each example and first decide if the left and right sides of the equal signs are equivalent. That would mean the equals sign makes the statement true. Then, decide if the associative property was used in the example.

**PROBLEM 2:**

|  |  |  |
| --- | --- | --- |
| **Example** | **Are the sides equivalent?** | **Does it use the associative Property?** |
| (2 + 3) –7 = 2 + (3 –7) | YES | YES |
| 3(2 **×** 5) = (3 **×**2) **×** 5 | YES | YES |
| 6 – (7 – 2) = (6 – 7) – 2 | NO | NO |
| 10 + [4 + (2 + 5)] = [10 + (4 + 2)] + 5 | YES | YES |
| 2[4(5 **×** 3)] = [2(4 **×** 5)] **×**3 | YES | YES |

Take each example and first decide if the left and right sides of the equal signs are equivalent. That would mean the equals sign makes the statement true. Then, decide if the distributive property was used in the example.

**PROBLEM 3:**

|  |  |  |
| --- | --- | --- |
| **Example** | **Are the sides equivalent?** | **Does it use the distributive Property?** |
| 2 × ( 3 + 5) = 2 × 3 + 2 × 5 | YES | YES |
| 4 + ( 2 + 6) = ( 4 + 2) + 6 | YES | NO |
| 7× [ 2 × ( 4+5)] = 2 × [ 7 × 4 + 7 × 5] | YES | YES |