***Properties of Irrational Numbers***

**1. The decimal expansion of an irrational number is non-terminating non-recurring.**

**Example**

**2. The sum or difference of a rational number and an irrational number is irrational.**

**Example:**

**3. The product or quotient of a non-zero rational number with an irrational number is irrational.**

**Example:**

**4. If you add, subtract, multiply or divide two irrationals, the result may be rational or irrational.**

**Example:**

**Sample Problem 1**: **Identify if the answer will be rational or irrational.**

|  |  |  |  |
| --- | --- | --- | --- |
| **a.** |  | **b.** |  |
|  | **Irrational** |  | **Rational** |
| **c.** |  | **d.** |  |
|  | **Rational** |  | **Irrational** |

**Sample Problem 2**: **Identify if the answer will be rational or irrational.**

|  |  |  |  |
| --- | --- | --- | --- |
| **a.** |  | **b.** |  |
|  | **Irrational** |  | **Irrational** |
| **c.** |  | **d.** |  |
|  | **Irrational** |  | **Irrational** |

|  |  |  |
| --- | --- | --- |
| **Commutative Property** | for Addition  for Multiplication |  |
| **Associative Property** | for Addition:  for Multiplication |  |
| **Distributive Property** |  |  |
| **Additive Identity** |  |  |

**Sample Problem 3**: **Insert a rational and an irrational number between each numbers**

|  |  |  |  |
| --- | --- | --- | --- |
| **a.** |  | **b.** |  |
|  |  |  |  |