

1. The Real Number System

- Which one of the following statements is FALSE ?
 - If a is a natural number, then a is a whole number.
 - Any whole number is also an integer.
 - Any integer is also a rational number.
 - The number zero (0) is both rational and irrational.
 - Any irrational number is also a real number.
- The multiplicative inverse of (-0.75) is
 - $\frac{1}{4}$
 - $-\frac{4}{3}$
 - $\frac{4}{3}$
 - $\frac{3}{4}$
 - $-\frac{1}{4}$
- Which one of the following statements is TRUE ?
 - Every irrational number is a real number.
 - The set of the whole numbers is closed under division.
 - $6 + (4 + 5) = (4 + 5) + 6$ illustrates the associative property.
 - The set $\{0, 1\}$ is closed under addition.
 - Each real number is either even or odd.
- Which one of the following statements is FALSE ?
 - The set of all nonzero rational numbers is closed under division.
 - The sum or product of two irrational numbers can be rational or irrational.
 - The set of irrational numbers does not contain a multiplication identity.
 - The set of irrational numbers is closed under subtraction.
 - The difference of two real numbers is also a real number.
- Which one of the following statements is TRUE ?
 - The set of irrational numbers is closed with respect to addition.
 - The set $\{-1, 0, 1\}$ is closed with respect to multiplication.
 - If x is any integer and y is any irrational number, then x/y is irrational.
 - The distributive law states that:
 $(a + b) + c = a + (b + c)$.
 - Any irrational number has a terminating or repeating decimal expansion.
- Which one of the following statements is TRUE ?
 - Every even integer has an additive inverse.
 - Every rational number has a multiplicative inverse.
 - $\pi = \frac{22}{7}$.
 - The distributive law states that $a + b = b + a$.
 - The set $\{0, -1\}$ is closed under addition.
- Which one of the following statements is FALSE ?
 - The set of irrational numbers is closed under addition.
 - $1.252525\dots$ is a rational number.
 - $-\frac{\sqrt{12}}{3\sqrt{3}}$ is a rational number.
 - The multiplication inverse of any irrational number is irrational.
 - $\frac{\pi}{2}$ is an irrational number.
- Which one of the following statements is FALSE ?
 - The addition inverse of $(-a)$ is (a) for any real number
 - $ab + c = c + ba$ is true because of the commutative property for addition and multiplication.
 - The set of integers contains an identity element for addition and multiplication.
 - Every real number has a multiplication inverse.
 - The set of irrational numbers is not closed under addition and multiplication.
- To prove that $[a + (-a)] \cdot b = b \cdot 0$, we use
 - the inverse property for addition and the commutative property for multiplication.
 - the identity property for addition and the property for zero.
 - the commutative property for addition only.
 - the definition for subtraction only.
 - the distributive property only.
- If $A = \{-\sqrt{9}, \frac{\pi}{2}, -\frac{3}{16}, 0.67, \sqrt{8}, -\sqrt{-100}\}$, then A has
 - one natural number.
 - four rational numbers.
 - six real numbers.
 - two integers.
 - two irrational numbers.
- Let S be a set consisting of the squares of the positive integers, that is $1, 4, 9, 16, \dots$, then S is closed under
 - addition.
 - subtraction.
 - multiplication.

- (d) division.
- (e) addition and subtraction.

12. $ax + ay = (x + y)a$ is true because of

- (a) the commutative property for multiplication only.
- (b) the distributive property only.
- (c) the commutative property for multiplication and the distributive property.
- (d) the commutative property for addition and the distributive property.
- (e) the commutative property for addition only.

13. The number 980.665×10^{-2} written in scientific notation is

- (a) 0.980665×10
- (b) 0.0980665×10^2
- (c) 9.80665
- (d) 98066.5×10^{-4}
- (e) 98.0665×10^{-1}