Quiz on The Real Number System – ℝ

Question 1:

Which of the following statements is true regarding the closure property of real numbers?

A) The sum of two real numbers is always a rational number.

B) The product of two real numbers is always a real number.

C) The quotient of two real numbers is always a whole number.

D) The difference of two real numbers is always an integer.

Question 2:

Which of the following is an example of the associative property?

A) $(2 + 3) + 4 = 2 + (3 + 4)$

B) $2 + 3 = 3 + 2$

C) $2 \times 3 = 6$

D) x^{-1} is the inverse of x

Question 3:

What is the result of $\sqrt{75}$?

A) $5\sqrt{3}$

B) 15

C) 7.5

D) 8

Question 4:

If a = 5 and b = -3, what is a + b?

A) 2

B) 8

C) -8

D) 1

Question 5:

Which of the following is a direct proof for the statement: "If x is an even integer, then x^2 is an even integer"?

A) Let x = 1; then x^2 = 1.

B) Let x = 2k, where k is an integer; then $x^2 = (2k)^2 = 4k^2$, and $4k^2$ is even.

C) Let x be odd; then x^2 is odd.

D) Let x = 0; then x^2 = 0.

Question 6:

What is the summation notation for the sum of the first n positive integers?

A) $\sum$(k=1 to n) k

B) $\sum$(i=1 to n) i^2

C) $\sum$(j=0 to n) j

D) $\sum$(k=1 to n) k^3

Question 7:

What is the value of $2^3 + 3^2$ using summation notation?

A) 8 + 9

B) $\sum$(i=1 to 2) i^3

C) $\sum$(j=2 to 4) j^2

D) $\sum$(k=1 to 3) k + $\sum$(j=1 to 2) j^2

Question 8:

Using mathematical induction, prove that for all integers n ≥ 1, the statement

1 + 2 + 3 + ... + n = n(n + 1) / 2 holds true. What is n = 3?

A) 6

B) 9

C) 8

D) 3

Question 9:

Which operation below demonstrates the identity element for addition?

A) 5 + 0 = 5

B) 5 × 1 = 6

C) 5 - 5 = 0

D) 5 + 1 = 6

Question 10:

The equation $x^2 - 1 = 0$ has which of the following solutions?

A) x = 1, -1

B) x = 0

C) x = 2

D) No real solutions

END OF ASSESSMENT