

**Practice – No.1**

**Perform operations with real numbers, Simplify exponent expressions and radical expressions: -**

1. Identify the real numbers below.
  - I.  $1, \frac{1}{5}, \sqrt{2}, -210$
  - II.  $1.67, \pi, 0, \sqrt{4}$
  - III.  $-0.33\bar{3}, 1000, -\frac{7}{8}, -(\sqrt{16})$
2. Which of the following is a rational number?
  - I.  $\frac{5}{6}, -0.253, \sqrt{2}, -1$
  - II.  $1,000, -0.12413 \dots, \frac{\pi}{\pi}, 0.51$
  - III.  $\pi, 0, \sqrt{25}, 3.33\bar{3}$
3. Which of the following is an irrational number?
  - I.  $-0.515, -2, \sqrt{100}, \frac{25}{67}$
  - II.  $10.10, -0.12, 18, \pi$
  - III.  $-\frac{2}{3}, 30, 1.25698712302 \dots, -0.66\bar{6}$
4. Identify the natural number(s) below?
  - I.  $-0.1, -2, 0, -1,000,000$
  - II.  $-12, -\frac{15}{16}, \sqrt{9}, 26$
  - III.  $-2, 640, 0, -0.6$
5. List all numbers from the given set that are:
  - I. Natural numbers ( $N$ )
  - II. Integers ( $I$ )
  - III. Rational numbers ( $R$ )
  - IV. Irrational numbers ( $IR$ )
$$\left\{-9, -\frac{4}{5}, 0, 0.25, \sqrt{3}, 9.2, \sqrt{100}\right\}$$

6. Evaluate each algebraic expression for the given value or values of the variable(s):

- I.  $7 + 5x$  for  $x = 10$
- II.  $6x - y$  for  $x = 3$  ,  $y = 8$
- III.  $x^2 + 3x$  for  $x = 8$
- IV.  $x^2 - 6x + 3$  for  $x = 7$
- V.  $4 + 5(x - 7)^3$  for  $x = 9$
- VI.  $x^2 - 3(x - y)$  for  $x = 8$  ,  $y = 2$
- VII.  $\frac{5(x+2)}{2x-14}$  for  $x = 10$
- VIII.  $\frac{2x+3y}{x+1}$  for  $x = -2$  ,  $y = 4$
- IX. The formula  $c = \frac{5}{9}(F - 32)$  expresses the relationship between *Fahrenheit temperature, F* , and *Celsius temperature, C*. use the formula to convert the *Fahrenheit temperature to its equivalent temperature on the Celsius scale if  $F = 50^\circ$*
- X. A ball was kicked vertically upward from the height of 4 feet with an initial speed of 60 feet per second. The formula:

$$h = 4 + 60t - 16t^2$$

Describe the ball's height above the ground,  $h$  in feet ,  $t$  seconds after it was kicked. What was the ball's height **2 second** after it was kicked.

7. Use the order of operations to simplify each expression:

- I.  $8^2 - 16 \div 2^2 \cdot 4 - 3$
- II.  $\frac{5 \cdot 2 - 3^2}{[3^2 - (-2)]^2}$
- III.  $8 - 3[-2(2 - 5) - 4(8 - 6)]$
- IV.  $\frac{2(-2) - 4(-3)}{5 - 8}$
- V.  $\frac{(5-6)^2 - 2|3-7|}{89 - 3 \cdot 5^2}$

8. Determine whether each statement is true or false. And if it false gives the true one.

I. Every rational number is an integer.	( )
II. Some whole numbers are not integer.	( )
III. Some rational numbers are not positive.	( )
IV. Irrational numbers cannot be negative.	( )
V. The term $x$ has no coefficient.	( )
VI. $5 + (x - 4) = 8(x - 4) = 8x - 32$	( )
VII. $-x - x = -x + (-x) = 0$	( )
VIII. $x - 0.02(x + 200) = 0.98x - 4$	( )

9. Rewrite each expression without absolute value bars:

- I.  $|300| =$
- II.  $|12 - \pi| =$
- III.  $|\sqrt{2} - 5| =$
- IV.  $\frac{-3}{|-3|} =$
- V.  $|-3| - |-7| =$

10 Evaluate each algebraic expression for  $x = 2$  and  $y = -5$

- I.  $|x + y| =$  ,  $|x| + |y| =$
- II.  $|x - y| =$  ,  $|x| - |y| =$
- III.  $\frac{y}{|y|} =$  ,  $\frac{|x|}{x} + \frac{|y|}{y} =$

11. Express the distance between the given numbers using absolute value. Then find the distance by evaluating the absolute value expression.

- I. 2 and 17
- II. -2 and 5
- III. -19 and -4

12. Simplify each algebraic expression:

- I.  $5(3x + 4) - 4$
- II.  $7(3y - 5) + 2(4y + 3)$
- III.  $5(3y - 2) - (7y + 2)$
- IV.  $7 - 4[3 - (4y - 5)]$
- V.  $18x^2 + 4 - [6(x^2 - 2) + 5]$
- VI.  $-(-14x)$
- VII.  $-(2x - 3y - 6)$
- VIII.  $\frac{1}{3}(3x) + [(4y) + (-4y)]$
- IX.  $8^2 - 16 \div 2^2 \cdot 4 - 3$
- X.  $8 - 3[-2(2 - 5) - 4(8 - 6)]$
- XI.  $\frac{2(-2) - 4(-3)}{5 - 8}$
- XII.  $\frac{12 \div 3 \cdot 5 | 2^2 + 3^2 |}{7 + 3 - 6^2}$