



**Mathematics I for Humanities (Math-011)**

Section \_\_\_\_\_

Name of Student: \_\_\_\_\_

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**ASSIGNMENT 2**

**Q.1 Perform the operations given that [3 Marks]**

$A = \{3, 6, 9, 10\}, \quad B = \{3, 4, 5, 6, 7\}$

$C = \{4, 5, 7, 11\}, \text{ and } D = \{1, 2, 3, 4, 5, 6, 7\}.$

1.  $A \cup B = \{3, 6, 9, 10\} \cup \{3, 4, 5, 6, 7\}$   
 $= \{3, 4, 5, 6, 7, 9, 10\}$  Ans.

2.  $C \cap (A \cup D) =$   
 $(A \cup D) = \{1, 2, 3, 4, 5, 6, 7, 9, 10\}$   
 $C \cap (A \cup D) = \{4, 5, 7, 11\} \cap \{1, 2, 3, 4, 5, 6, 7, 9, 10\}$   
 $= \{4, 5, 7\}$  Ans.

3.  $C \cap D =$   
 $= \{4, 5, 7, 11\} \cap \{1, 2, 3, 4, 5, 6, 7\}$   
 $= \{4, 5, 7\}$  Ans.

**Q.2 Complete the following table [4 Marks]**

S.No	Interval Notation	Set builder Notation	Graph
1	$(3, \infty)$	$\{x   x > 3\}$	
2	$(-5, 5)$	$\{x   -5 < x < 5\}$	
3	$(-4, 3]$	$\{x   -4 < x \leq 3\}$	
4	$[0, 6)$	$\{x   0 \leq x < 6\}$	

Q.3 Evaluate the expression

[6 Marks]

$$1. \left(\frac{2ab^2c^3}{5ab^2}\right)^3 = \frac{2^3 a^3 b^{2 \times 3} c^{3 \times 3}}{5^3 a^3 b^{2 \times 3}}$$

$$= \frac{8b^6c^9}{125b^6}$$

$$= \frac{8}{125} c^9 \quad \underline{\text{Ans.}}$$

$$2. \left(\frac{8}{27}\right)^{-2/3} = \left(\frac{27}{8}\right)^{2/3}$$

$$= \left(\frac{3^3}{2^3}\right)^{2/3} = \frac{3^{3 \times 2/3}}{2^{3 \times 2/3}} = \frac{3^2}{2^2} = \frac{9}{4} \quad \underline{\text{Ans.}}$$

$$3. 125^{4/3} =$$

$$\left(5^3\right)^{4/3} = 5^{3 \times 4/3}$$

$$= 5^4 = 5 \times 5 \times 5 \times 5 = 625 \quad \underline{\text{Ans.}}$$

$$4. \left(\frac{a^2b}{a^3b^{-3}}\right)^0 = 1$$

$$\begin{aligned}
5. \sqrt[3]{216 m^3 n^9} &= \\
&= (216 m^3 n^9)^{\frac{1}{3}} \\
&= (6^3 m^3 n^9)^{\frac{1}{3}} \\
&= 6^{3 \times \frac{1}{3}} m^{3 \times \frac{1}{3}} n^{9 \times \frac{1}{3}} \\
&= 6 m n^3 \quad \underline{\text{Ans.}}
\end{aligned}$$

Q.4 Perform the operations

[2 Marks]

$$1. (17 - 16) \times 13 + 4 =$$

$$= 1 \times 13 + 4$$

$$= 13 + 4$$

$$= 17 \quad \underline{\text{Ans.}}$$

$$2. (11 + 29 - 4) \div 12 =$$

$$= 36 \div 12$$

$$= 3 \quad \underline{\text{Ans.}}$$

$$3. (12 + 48 - 6^2) + (5^3 - 3) =$$

$$= (12 + 48 - 36) + (125 - 3)$$

$$= 24 + 122$$

$$= 146 \quad \underline{\text{Ans.}}$$