

The City School

“Maths”

Q NO 1.i) If $U = \{x \mid x \in W, x \leq 10\}$, $A = \{4, 6, 8, 9\}$,
 $B = \{3, 6, 7, 9, 10\}$

Prove that $(A \cap B)' = A' \cup B'$

ii) Suppose that the ordered pairs $(x+y, 2)$ and $(4, x-y)$ are equal. Find x and y .

Q.no .2 i) Simplify $[(125)^2 \times 8 / (64)^2]^{1/3}$

ii) Find the value of $x-y$ when $x+y=-9$ and $xy=20$

Q.no 3 i) If $x = 7 + 4\sqrt{3}$, Find $x - \frac{1}{x}$ and $x^2 - \frac{1}{x}$

ii) Find the value of $4ab$ when $a+b=9$ and $a-b=-5$

Q.no4 i) Show that if $x^3 + 4x^2 - 7x - 3$ is divided by $x-2$, the remainder is 7.

ii) If $p(x) = 2x^4 + 3x^3 - x - 5$, then find $p(-2)$.

Q.no 5 i) For what value of k , the expression $2a^4 + 3a^3 - 4a^2 + 14a + k$ is exactly divisible by $a^2 - 2a + 3$?

ii) Find the value of $l^3 + m^3 + n^3 - 3lmn$, when :

$$l+m+n=15, \quad lm+mn+nl=74$$