**National Institute of Open Schooling (NIOS)**
**Secondary Course : Mathematics**
**Lesson 4 : Special Products and Factorizations**
**Worksheet - 4**

1.      Write any two polynomials of degree two. Find its factors.

2.      By using splitting the middle terms, factorize following polynomials

   i.      $x^2 - 5x + 6$

   ii.      $2x^2 + 6x + 4$

3.      If $x - \frac{1}{x} = -5$, then find the value of

   i.      $x^2 + \frac{1}{x^2}$     and

   ii.      $x^4 + \frac{1}{x^4}$

4.      Write any two polynomials of numerical coefficient are one and find its Least Common

Multiple (LCM).

5.      Write any two monomials of numerical coefficients are 12 and 18 respectively. Find its

Highest Common Factor (HCF).

6.      Factorize the following polynomials by using special product formula.

   (i) $x^4 - 125y^4$

   (ii) $x^4 + 8x^2 + 16$

7.      If $a - b = 7$ and $ab = 15$, find the value of $(a - b)^3$.

8.      Using special product and without direct multiplication, find out the product of following :

   (i) $93 \ and \ 87$

   (iii) $105 \ and \ 105$

   (ii) $(x - 2) \ and \ (x - 2)$

9.   Simplify $\dfrac{(0.68)^3 + (0.32)^3}{(0.68)^2 + (0.32)^2 - (0.68 X 0.32)}$ by using algebraic identify.

10.   If $a^2 + b^2 = 45$, and $ab = 18$, then find the value of $\dfrac{1}{a} + \dfrac{1}{b}$.