POLYNOMIALS

FACTORISATION

EXERCISE

Q.1 Factorize $x^2 + 4 + 9z^2 + 4x - 6xz - 12z$

Q.2 Using factor theorem, factorize the polynomial $x^3 - 6x^2 + 11x - 6$.

Q.3 Factorize, $2x^4 + x^3 - 14x^2 - 19x - 6$

Q.4 Simplify : $\frac{4x-2}{x^2-x-2} + \frac{3}{2x^2-7x+6} - \frac{8x+3}{2x^2-x-3}$

Q.5 Establish the identity $\frac{6x^2+11x-8}{3x-2} = (2x+5) + \frac{2}{3x-2}$

Q.6 Expand each of the following :

(i) $(3x - 4y)^2$ (ii) $\left(\frac{x}{2}+\frac{y}{3}\right)^2$

Q.7 Find the products :

(i) $(2x + 3y)(2x - 3y)$

(ii) $\left(x-\frac{1}{x}\right)\left(x+\frac{1}{x}\right)\left(x^2+\frac{1}{x^2}\right)\left(x^4+\frac{1}{x^4}\right)$

Q.8 If $x + \frac{1}{x} = 6$, find : $x^4 + \frac{1}{x^4}$

Q.9 If $x^2 + \frac{1}{x^2} = 27$, find the value of the $x - \frac{1}{x}$

Q.10 If $x + y = 12$ and $xy = 32$, find the value of $x^2 + y^2$.

ANSWER KEY

1. $(x + 2 - 3z)\ (x + 2 - 3z)$

2. $(x - 1)\ (x - 2)\ (x - 3)$

3. $(x + 1)\ (x + 2)\ (x - 3)\ (2x + 1)$

4. $\frac{15}{(x-2)(x+1)(2x-3)}$

6. (i) $9x^2 - 24xy + 16y^2$

   (ii) $\frac{x^2}{4} + \frac{1}{3}xy + \frac{y^2}{9}$

7. (i) $(2x)^2 - (3y)^2 = 4x^2 - 9y^2$

   (ii) $x^8 - \frac{1}{x^8}$

8. 1154

9. ± 5

10. 80