SHRI DHARMASTHALA MANJUNATHESHWARA SCHOOL,
GRADE 9 WORKSHEET 2: POLYNOMIALS

1. Factorise $p(x) = x^4 + x^3 - 7x^2 - x + 6$ by factor theorem.
2. Prove that $2x^4 - 6x^3 + 3x^2 + 3x - 2$ is exactly divisible by $x^2 - 3x + 2$ by
   i) actual division ii) Without actual division
3. Simplify: $\frac{(4x^2-9y^2)^3+(9y^2-16y^2)^3+(16z^2-4x^2)^3}{(2x-3y)^3+(3y-4z)^3+(4z-2x)^3}$
4. Factorize:b
   i) $3(x+2)^2 - 5(x+2) + 2$ *ii)* $x^6 + y^6$
5. If $a + b + c = 9$ and $ab + bc + ca = 26$, find $a^2 + b^2 + c^2$
6. Find the zeroes of$(x-2)^2 - (x+2)^2$.
7. If $y = -1$ is a zero of the polynomial $q(y) = 4y^3 + ky^2 - y - 1$, then find the value of k.
8. If $x + \frac{1}{x} = 5$, find the value of $x^3 + \frac{1}{x^3}$.
9. For what value of m is $x^3 - 2mx^2 + 16$ divisible by $x + 2$.
10. Find the value of polynomial $8x^3 - 6x^2 + 2$ at $x = 1$