HOMEWORK 2 - Q5

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1 Solution

$$x* < 1, 1, -1 >=< 1, 0, -1, 2, -1 >$$

In the above equation, if we deduce the polynomials from the the lists of values and let,

$$A(y) = 1 + y - y^2$$

$$B(y) = 1 - y^2 + 2y^3 - y^4$$

We can notice that x would be a 2nd degree Polynomial and hence let,

$$x(y) = a + b * y + c * y^2$$

We can say that,

$$LHS => 1 + 0 * y - y^2 + 2y^3 - y^4$$

Multiply x * A to get the right hand side of the equation,

$$RHS => (a + b * y + c * y^2) * (1 + y - y^2)$$

$$RHS => a + (a + b)x + (b - a + c)x^2 + (c - b)x^3 + (-c)x^4$$

Equating RHS and LHS:

$$a = 1$$

$$a + b = 0 => b = -1$$

$$c = 1$$

Therefore to finalise the values of x,

$$x =< 1, -1, 1 >$$