Problem 2:

Gives a second order polynomial:

We see that if we multiply with the denumerator we get

We have 5 equations and 4 unknowns

This is an inconsistent system of equations

We get a difference:

so

This system is consistent

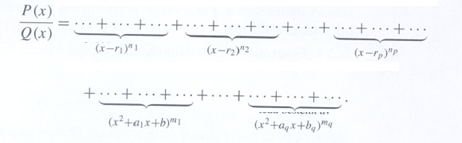
In partial fractions there is a general formula that says that one should split partial fractions the way that they do below. Here we have defined that P(x) and Q(x) are polynoms:

Where the power of P<power of Q

We rewrite Q(x) to



Then we perform the partial fraction:



Where



in the partial fraction has the shape



And



has the shape:



Since this is the normal way to split into partial fractions is there a proof that shows that this partial fraction method always gives a consistent equation system that always has a solution as my partial fraction attempt number two above?