3) Write a function pmult that multiplies two polynomials. Figure out the computing time of your function.

$(x^5+x^3+x^2) \times (x^6+x^4+x^2+x+1) =$ (6,5), (5,4; 6,3), (6,2), (5,2; 4,3), (5,1; 4,2), (5,0; 3,2)

(1st, 1st), $\boxed{(1st, 2nd), (2nd, 1st)}$, (

```
void pmult(int startA, int finishA, int startB, int finishB)
{
  int i,j;
  int startx=avail, finishx= avail+(finishB-startB);
  int starty, finishy;
  int startD, finishD;
  for(i=startA; i<=finishA; i++)
  {
    for(j=startB; j<=finishB; j++)
      attach(terms[i].coef * terms[j].coef, terms[i].expon + terms[j].expon);
    if(i==startA)
      continue;
    starty= avail-(finishB-startB+1);
    finishy=avail-1;
    padd(startx, finishx, starty, finishy, &startD, &finishD);
    startx= startD;
    finishx= finishD;
  }
}
```

Proof of Correctness

The assumptions in the case of padd will hold.

Inner Loop Invariant: Just before the start of the loop iteration, $\forall k$, $startB \leq k < j$, the kth term of the polynomial, $terms[i].coef * x^{terms[i].expon} * (terms[startB].coef * x^{terms[startB].expon} + \ldots + terms[j].coef * x^{terms[j].expon} + \ldots + terms[finishB].coef * x^{terms[finishB].expon})$ has been correctly computed.