```
public class mat{
    // returns the product of  two  2 x 2 matrices

    public static double [][] inverse( double [][] a)
    {
              double [][]       inverse  = new double [2][2];
              double det = a[0][0] *a[1][1] - a[0][1]*a[1][0];
                  inverse [0][0]= a[1][1]/det;
                  inverse [0][1]= -a[0][1]/det;
                  inverse [1][0]=-a[1][0]/det;
                  inverse [1][1]=a[0][0]/det;
                      return inverse;
    }

    public static double [][] multiply( double [][] m, double n[][])
    {
      double [][]       answer = new double [2][2];
      double a,b,c,d,e,f,g,h;

      a = m[0][0]; b = m[0][1];
      c = m[1][0]; d = m [1][1];

      e = n[0][0]; f = n[0][1];
      g = n[1][0]; h = n [1][1];

      answer[0][0] = a*e+b*g; answer[0][1] = a*f+b*h;
      answer[1][0]=c*e+d*g; answer[1][1] = c*f+d*h;
        return answer ;
    }

    public static void main (String c[])
    {
        double [][]  a  = new  double [2][2];
        double [][]  b  = new  double [2][2];

        a[0][0]= 1;     a[0][1]= 2;     a[1][0]= 0; a[1][1]= 2;

        b[0][0]= 1;     b[0][1]= 0;     b[1][0]= 1; b[1][1]= 2;

        double [][] answer  = multiply (a,b);

        double [][] inverseofa = inverse (a);
        double [][] cc = multiply(a, inverseofa);

        for(int i = 0; i < 2;i++)
            {
                        for(int j = 0; j < 2;j++)
                            {
                                System.out.print(cc[i][j] +" "  );
                            }
                        System.out.println("" );

            }

    }









}
```