

```
function M=question1(m,n)
M=zeros(n,m);
P=@(i,j) factorial(i+j-2)/factorial(i-
1)/factorial(j-1);
for i=1:n
    for j=1:m
        M(i,j)=P(i,j);
    end
end
end
```

```
function question2(x,y)
%i assume x y column vectors
n=length(x);
my_polynom=pinv([ x.^2 x ones(n,1) ])*y;
z=linspace(min(x),max(x),1e3);
parabola=@(z) polyval(my_polynom,z);
plot(x,y,'o',z,parabola(z));
end
```

```
function y=question3(n)
```

```
if n==1
    y=3;
elseif n==0
    y=0;
else
    y=question3(n-1)+question3(n-2);
end
end
```

%bonus: golden rationⁿ

```
function x=question4(A,b)
n=length(b);
x=zeros(n,1);
for i=1:n
    temp=A;
    temp(:,i)=b;
    x(i)=det(temp)/det(A);
end
end
```

```
function my_convolution=question5(f,g,h)
```

%i ssume f,g give the values in points

0,h...n*h

%f g column vectors

n=length(f);

my_convolution=zeros(n,1);

for i=1:n

my_convolution(i)=h/2*(f(n)*g(i)+...
2*f(n-1:-1:2)*g(2:n-1)+...
f(1)*g(n));

end

end