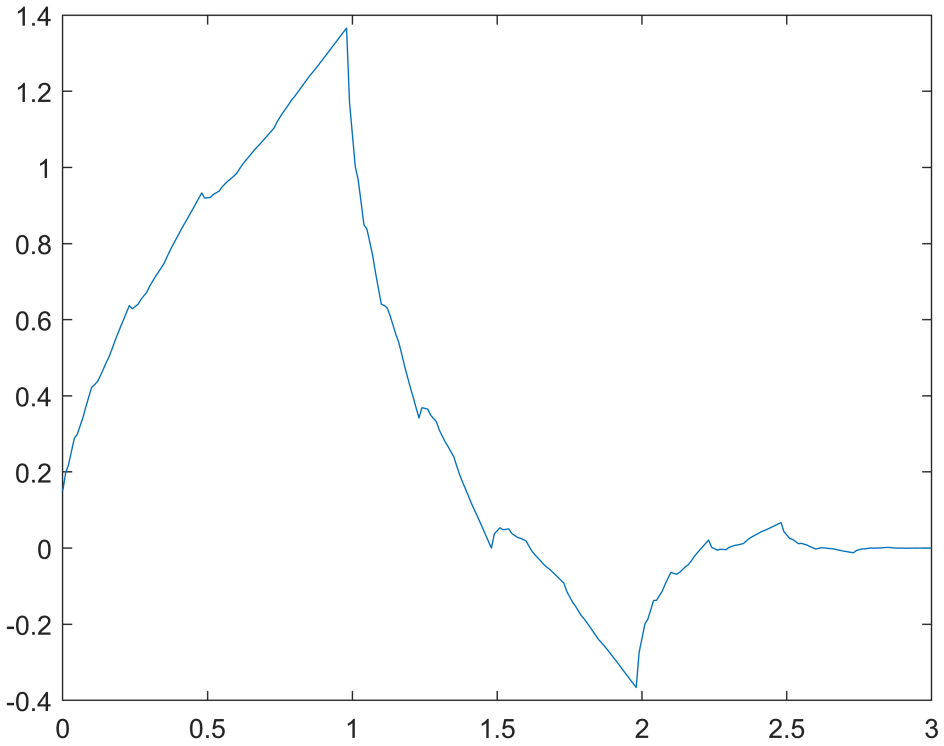
```
%problem 4

h1 = [1+sqrt(3),3+sqrt(3),3-sqrt(3),1-sqrt(3)]/8
```

```
h1 = 1×4
    0.3415    0.5915    0.1585   -0.0915
```

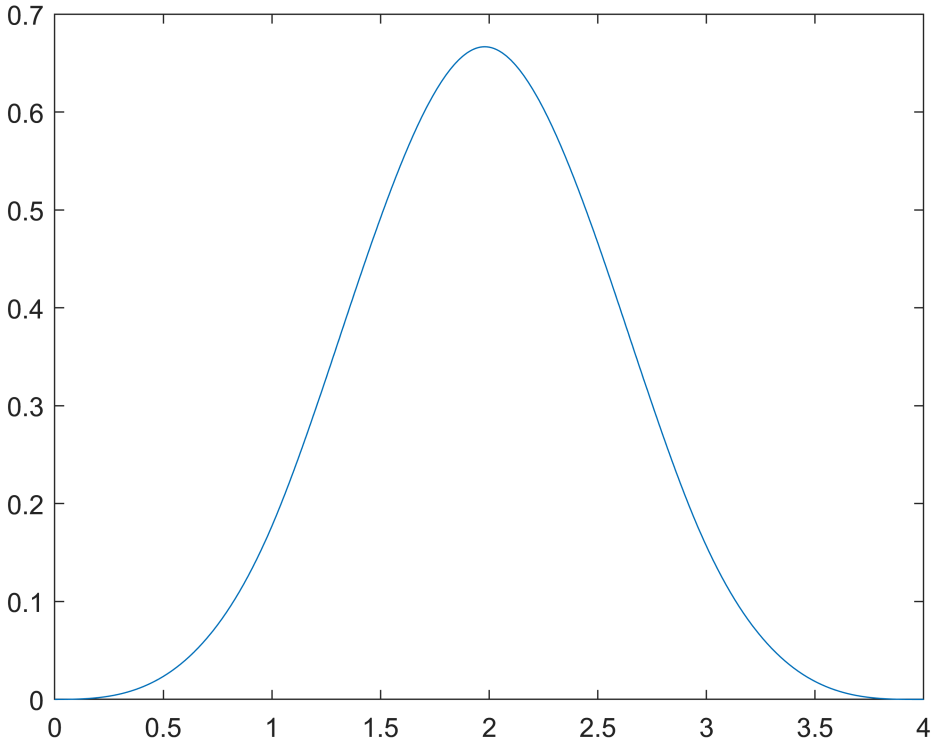
```
cascade(h1)
```




```
h2 = [1,4,6,4,1]/16
```

```
h2 = 1×5
    0.0625    0.2500    0.3750    0.2500    0.0625
```

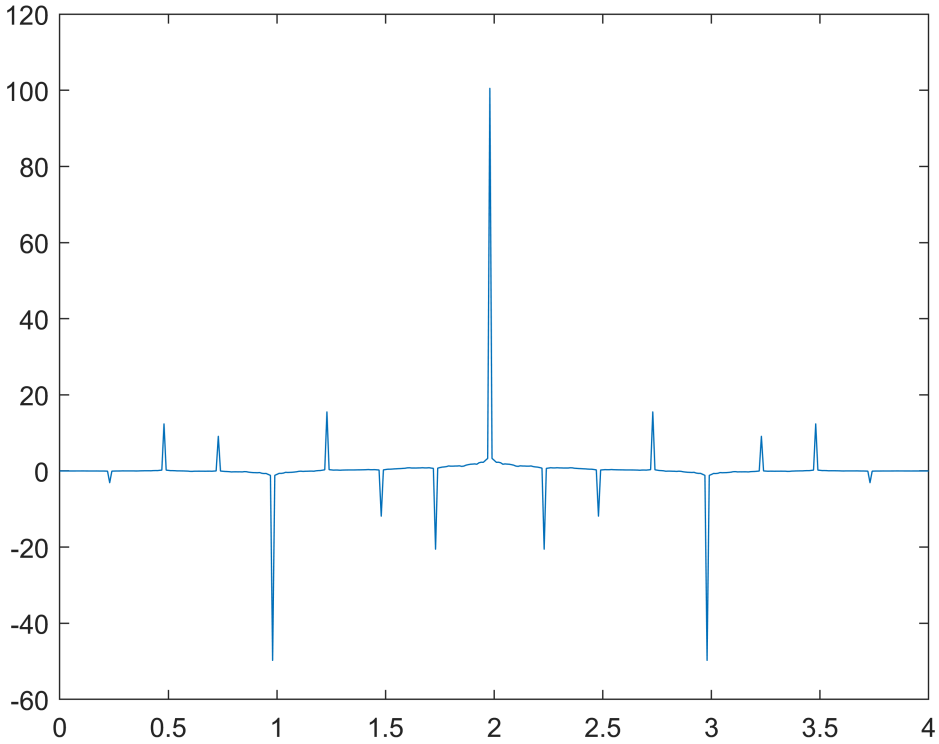
```
cascade(h2)
```




```
h3 = [-1,2,6,2,-1]/8
```

```
h3 = 1×5
   -0.1250    0.2500    0.7500    0.2500   -0.1250
```

```
cascade(h3)
```



错误使用 Untitled2>cascade (line 34)
divergence

```
function []=cascade(h)
    n      = length(h)-1;
    tsplit = 100;
    tt     = 0:1/tsplit:n;
    ntt    = length(tt);
    phi    = double(tt<1);

    while 1 % Iterate until convergence or divergence
        phinew=0*phi;

        for j=1:ntt
            for k=0:n
                index=2*j-k*tsplit+1;

                if index>=1 && index<=n*tsplit+1
                    phinew(j)=phinew(j)+2*h(k+1)*phi(index);
                end
            end
        end

        plot(tt,phinew),pause(1e-1)

        if max(abs(phinew))>100
            error('divergence');
        end
```

```
        if max(abs(phinew-phi))<1e-3
            break;
        end

        phi=phinew;
    end

end
```