

作业程序

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EX1

```
#include<stdio.h>
int main(){
    double x,y;
    x=1;
    y=1;
    double x1,y1;
    for(int i=1;i<=100;i++){
        printf("%lf %lf\n",x,y);
        x1=5*x-3*y;
        y1=-6*x-2*y;
        if(i>=2){
            printf("The weight is %lf %lf\n",x1/x,y1/y);
        }
        x=x1;
        y=y1;
    }
}
```

EX2

```
#include<stdio.h>
int main(){
    double x,y;
    x=1;
    y=1;
    double x1,y1;
    for(int i=1;i<=100;i++){
        printf("%lf %lf\n",x,y);
        x1=-1*x+1.5*y;
        y1=1.5*x-3.5*y;
        if(i>=2){
            printf("The weight is %lf %lf\n",x1/x,y1/y);
        }
        x=x1;
        y=y1;
    }
}
```

hw

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1. (1) $A = \begin{pmatrix} 5 & -3 \\ -6 & -2 \end{pmatrix}$ 幂法求最大特征值及向量

$x_0 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$ 迭代得到 $\lambda = 7$

特征向量 $\begin{pmatrix} 3 \\ -2 \end{pmatrix}$

2. (1) $A = \begin{pmatrix} 7 & 3 \\ 2 & 1 \end{pmatrix}$ $Ax^{k+1} = x^k$

$x^0 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$ $\lambda = -4.202562 \Rightarrow \lambda' = \frac{1}{\lambda} = -0.2379$

特征向量 $(1, 2.135)$