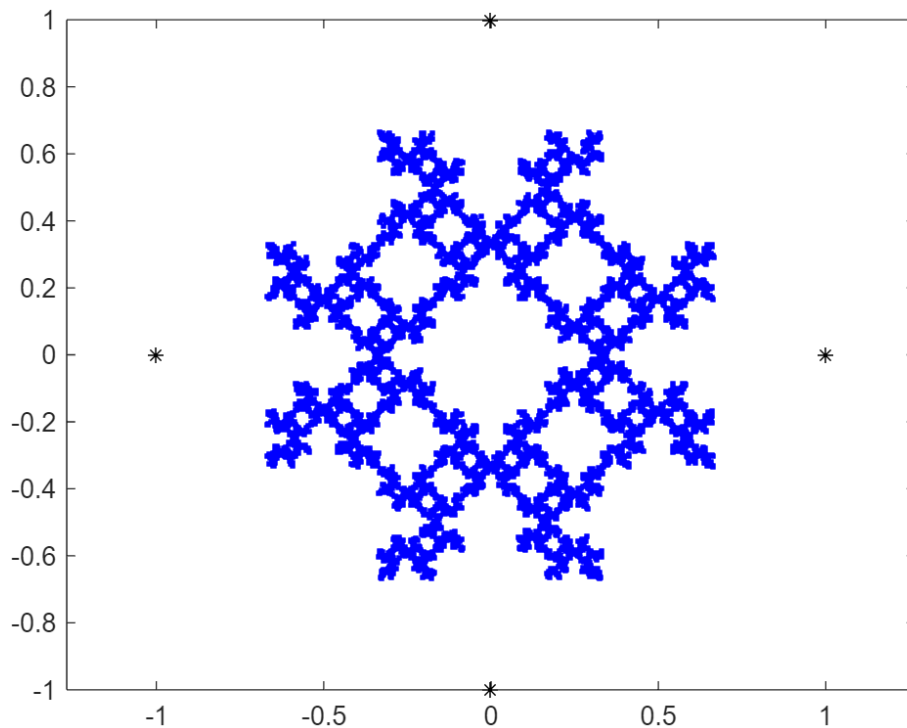```
%% Square with Vertex Preference (new vertex cannot be the same as previous)
clear;
T=[1/2 0; 0 1/2];
t=linspace(0,2*pi,5);
t(5)=[];
v=[cos(t); sin(t)];
x(:,1)=[rand-0.5; rand-0.5];
plot(v(1,:),v(2,:),'k*',x(1,1),x(2,1),'b.');
axis equal;
hold on;
Num=10000;
k1=0;
for j=1:Num
k=randi(3);
if (k>=k1)
k=k+1;
end
x(:,j+1)=T*(x(:,j)-v(:,k))+v(:,k);
k1=k;
end
plot(x(1,:),x(2,:),'b.');
hold off;
```
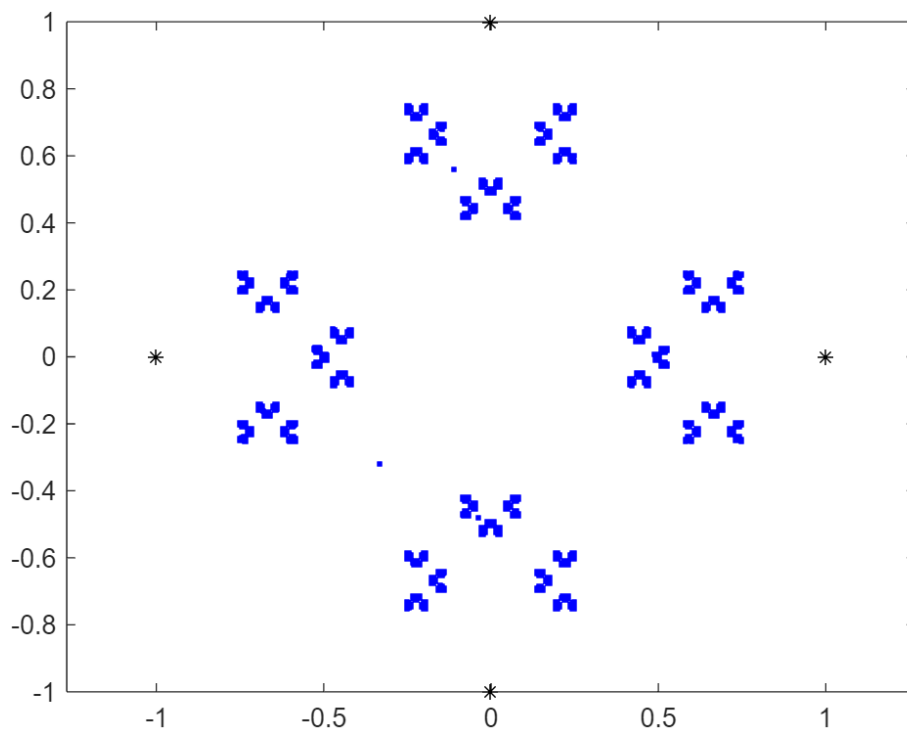


```
clear;
T=[1/3 0; 0 1/3];
t=linspace(0,2*pi,5);
t(5)=[];
```

```
v=[cos(t); sin(t)];
x(:,1)=[rand-0.5; rand-0.5];
plot(v(1,:),v(2,:),'k*',x(1,1),x(2,1),'b.');
axis equal;
hold on;
Num=10000;
k1=0;
for j=1:Num
k=randi(3);
if (k>=k1)
k=k+1;
end
x(:,j+1)=T*(x(:,j)-v(:,k))+v(:,k);
k1=k;
end
plot(x(1,:),x(2,:),'b.');
hold off;
```



```
 clear;
T=[2/3 0; 0 2/3];
t=linspace(0,2*pi,5);
t(5)=[];
v=[cos(t); sin(t)];
x(:,1)=[rand-0.5; rand-0.5];
plot(v(1,:),v(2,:),'k*',x(1,1),x(2,1),'b.');
axis equal;
hold on;
```

```
Num=10000;
k1=0;
for j=1:Num
k=randi(3);
if (k>=k1)
k=k+1;
end
x(:,j+1)=T*(x(:,j)-v(:,k))+v(:,k);
k1=k;
end
plot(x(1,:),x(2,:),'b.');
hold off;
```