

```
% exp4_1.m --- 一维插值命令的学习
```

```
% yi = interp1(x,y,xi,'method')
```

```
% x,y 是插值节点,xi 是插值的自变量,yi 是插值函数值
```

```
% method 含义如下
```

```
%         linear --- 线性插值
```

```
%         cubic  --- 三次多项式插值
```

```
%         spline --- 三次样条插值(相当于 spline(x,y,xi) 后面用专门介绍)
```

```
%         nearest --- 最近邻插值
```

```
x = linspace(0,2*pi,7);
```

```
y = sin(x);
```

```
xi = linspace(0,2*pi,101);
```

```
yi = interp1(x,y,xi,'linear');
```

```
subplot(2,2,1)
```

```
plot(x,y,'o',xi,sin(xi),xi,yi)
```

```
axis([0 2*pi -1.2 1.2])
```

```
title('linear 插值')
```

```
yi = interp1(x,y,xi,'cubic');
```

```
subplot(2,2,2)
```

```
plot(x,y,'o',xi,sin(xi),xi,yi)
```

```
axis([0 2*pi -1.2 1.2])
```

```
title('cubic 插值')
```

```
yi = interp1(x,y,xi,'spline');
```

```
subplot(2,2,3)
```

```
plot(x,y,'o',xi,sin(xi),xi,yi)
```

```
axis([0 2*pi -1.2 1.2])
```

```
title('spline 插值')
```

```
yi = interp1(x,y,xi,'nearest');
```

```
subplot(2,2,4)
```

```
plot(x,y,'o',xi,sin(xi),xi,yi)
```

```
axis([0 2*pi -1.2 1.2])
```

```
title('nearest 插值')
```