Q1. When the x values are given as points

```
x = [0 1 2 3 4 5]
```

```
x = 1×6
     0     1     2     3     4     5
```

```
y = [1.0 1.4 1.9 1.7 1.5 1.2]
```

```
y = 1×6
    1.0000    1.4000    1.9000    1.7000    1.5000    1.2000
```

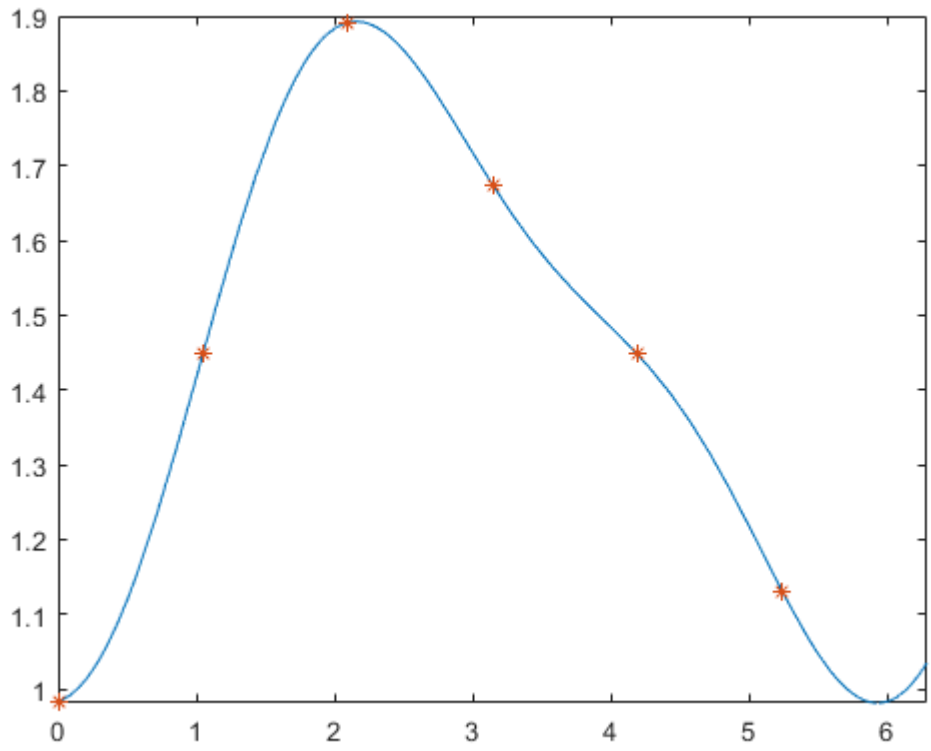
```
[hseries] = harmonic_analysis(x, y, 2);
```

```
Divided 2*pi into 6 intervals of 1.04720 each
Harmonic Series is :
```

$$0.1732050808\sin(1.047197551\,t) - 0.1\cos(2.094395102\,t) - 0.3666666667\cos(1.047197551\,t) - 0.05773502692\sin(2.094395102$$

```
fplot(hseries, [0 2*pi])
hold on;
x = 0:(2*pi/6):(2*pi/6)*5; %% take care of the angles, we plot
y = subs(hseries, x);
plot(x, y, '*')

hold off;
```



Q2. When x is given in terms of angles

```
x = 0:pi/4:7*pi/4
```

```
x = 1×8
         0    0.7854    1.5708    2.3562    3.1416    3.9270    4.7124    5.4978
```

```
y = [0.5 2.4 3.7 5.3 1 2.5 4.7 1.2]
```

```
y = 1×8
    0.5000    2.4000    3.7000    5.3000    1.0000    2.5000    4.7000    1.2000
```

```
x = 0:(length(y)-1)
```

```
x = 1×8
     0     1     2     3     4     5     6     7
```

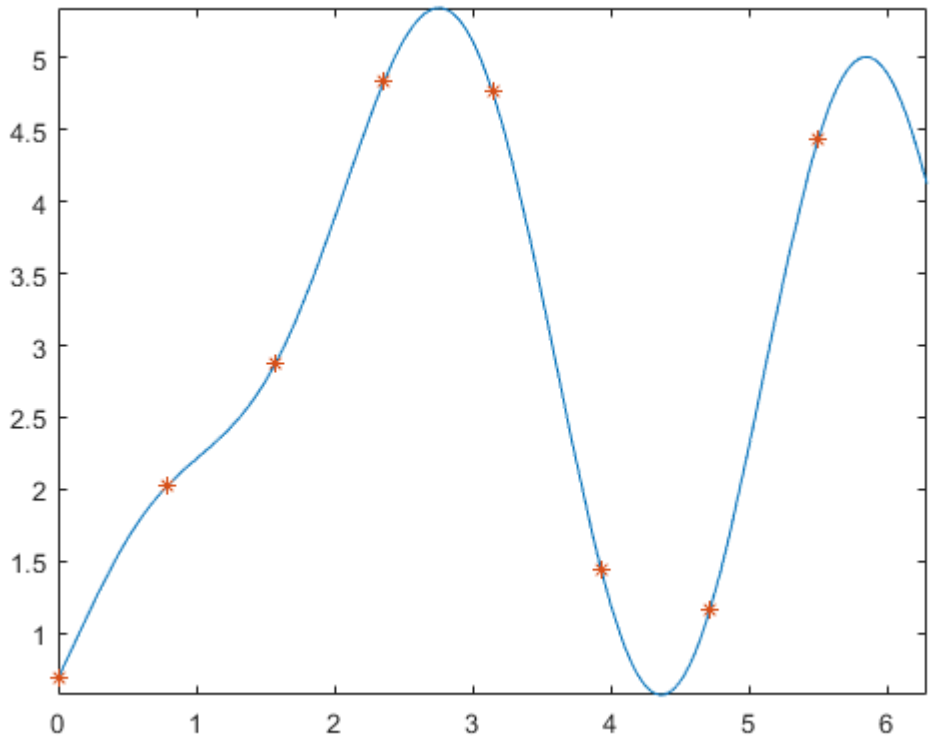
```
[hseries] = harmonic_analysis(x, y, 3);
```

```
Divided 2*pi into 8 intervals of 0.78540 each
Harmonic Series is :
```

$$0.6174621202\cos(2.35619449\,t) + 0.9571067812\sin(2.35619449\,t) - 0.8674621202\cos(0.7853981634\,t) - 1.725\cos(1.57079632$$

```
fplot(hseries, [0 2*pi])
hold on;
x = 0:(2*pi/8):7*(2*pi/8);  % here we divide 2*pi into 8 intervals, so 2*pi/8 each intervals,
                            % the last interval is number of data points -1 * size of each inte
y = subs(hseries, x);
plot(x, y, '*')

hold off;
```


5
4.5
4
3.5
3
2.5
2
1.5
1
0
1
2
3
4
5
6