

PolyFitExample.m

```
% MATLAB Built-In Function polyfit and polyval
```

```
%
```

```
% POLYFIT fit polynomial to data.
```

```
% P = POLYFIT(X, Y, N) finds the coefficients of a polynomial P(X) of degree N that fits the data Y best in
```

```
% a least-squares sense. P is a row vector of length N+1 containing the polynomial
```

```
% coefficients in descending powers,  $P(1)*X^N + P(2)*X^{(N-1)} + \dots + P(N)*X + P(N+1)$ .
```

```
% Example: Curve Fit: polyfit Function
```

```
% Using the polyfit function, find and plot the third degree
```

```
% polynomial that best fits the data x and y arrays
```

```
% allocate array x from 0 to 1.2 with step 0.3
```

```
x = 0:0.3:1.2;
```

```
% specify y array
```

```
y = [3.6 4.8 5.9 7.6 10.9];
```

```
% call the polyfit function for a third-degree polynomial
```

```
% that best fits the data in the x and y array
```

```
P = polyfit(x, y, 3);
```

```
% display the coefficients
```

```
disp(P);
```

```
% generate 100 points for plotting purposes
```

```
xi = linspace(0, 1.2);
```

```
% evaluate the polynomial at these points
```

```
yi = polyval(P, xi);
```

```
% draw the cubic polynomial fit
```

```
plot(xi, yi)
```

```
hold on
```

```
% draw the x and y array points
```

```
plot(x, y, 'o')
```

To run PolyFitExample.m,
type “PolyFitExample” on matlab prompt, and hit return.

