

```
r=[ 1.5 + 2i 1.5 - 2i];
```

```
fi=roots2ar(r)
```

```
fi =
```

```
0.4800 -0.1600
```

```
causal(fi)
```

```
ans =
```

```
Causal process
```

```
y=simarma(fi,[],5000,0.5);
```

```
plot(y)
```

```
[f2,s2,C] = yuwaest(y,2);
```

```
f2
```

```
f2 =
```

```
0.4856 -0.1573
```

```
s2
```

```
s2 =
```

```
0.5151
```

```
specarma(fi,[],0.5,1);
```

```
specarma(f2,[],s2,1);
```

```
z=iddata(y',[],1);
```

```
M=armax(z,[2 0])
```

```
M =
```

```
Discrete-time AR model:  $A(z)y(t) = e(t)$ 
```

```
 $A(z) = 1 - 0.4859 z^{-1} + 0.1573 z^{-2}$ 
```

```
Sample time: 1 seconds
```

```
Parameterization:
```

```
Polynomial orders: na=2
```

```
Number of free coefficients: 2
```

```
Use "polydata", "getpvec", "getcov" for parameters and their uncertainties.
```

```
Status:
```

```
Estimated using ARMAX on time domain data "z".
```

```
Fit to estimation data: 10.36% (prediction focus)
```

```
FPE: 0.5158, MSE: 0.5152
```

```
fi
```

```
fi =
```

```
0.4800 -0.1600
```

```
M=arx(z,2)
```

```
M =
```

```
Discrete-time AR model:  $A(z)y(t) = e(t)$ 
```

```
 $A(z) = 1 - 0.4859 z^{-1} + 0.1573 z^{-2}$ 
```

```
Sample time: 1 seconds
```

```
Parameterization:
```

```
Polynomial orders: na=2
```

```
Number of free coefficients: 2
```

```
Use "polydata", "getpvec", "getcov" for parameters and their uncertainties.
```

```
Status:
```

```
Estimated using ARX on time domain data "z".
```

```
Fit to estimation data: 10.37% (prediction focus)
```

```
FPE: 0.5154, MSE: 0.5151
```

```
M=armax(z,[2 1])
```