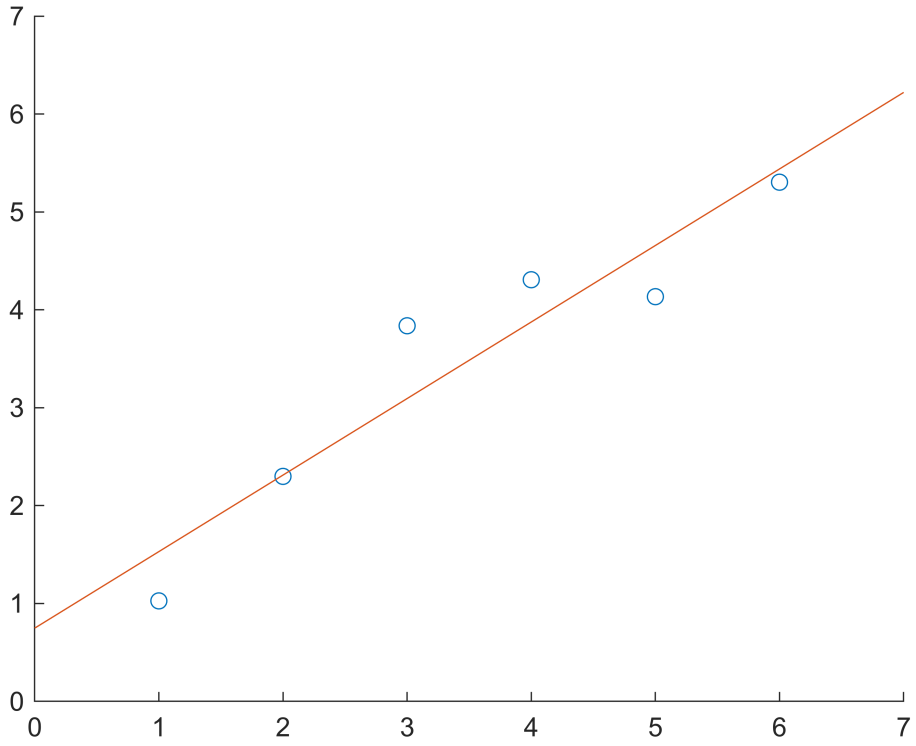
```
rng(222)
xdata=1:6;
ydata=xdata+0.5*randn(1,6);
```

a.

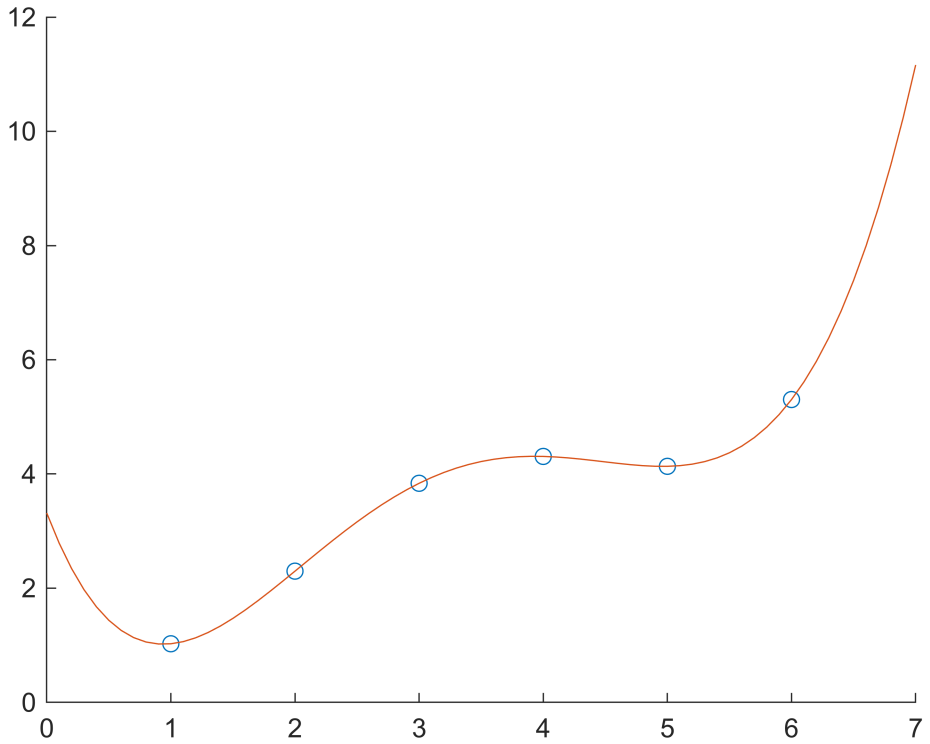
```
xval=0:.1:7;
p1=polyfit(xdata,ydata,1);
y1val=polyval(p1,xval);

figure
scatter(xdata,ydata)
hold on
plot(xval,y1val)
```



b.

```
p5=polyfit(xdata,ydata,5); % only need 5th to fit 6 dots
y5val=polyval(p5,xval);
figure
scatter(xdata,ydata)
hold on
plot(xval,y5val)
```



c.

```
rng(12345)
xtest = 1.5:5.5 ;
ytest = xtest + 0.5*randn(1,5) ;
```

d.

```
ypred1 = polyval(p1,xtest)
```

```
ypred1 = 1×5
       1.921       2.7028       3.4845       4.2663        5.048
```

```
%% e.
ypred5 = polyval(p5,xtest)
```

```
ypred5 = 1×5
      1.4716       3.1615        4.218       4.2113       4.3714
```

```
%% f.
sum((ypred1-ytest).^2)
```

```
ans =
      1.0527
```

```
sum((ypred5-ytest).^2)
```

```
ans =
```

```
    4.3062
```

```
% linear is prefered
```