```
%% create the stock and call payoff vectors
stock = [1:100]';
for i = [1:100]
    for j = [1:100]
        call(i,j) = max(stock(j)-5*i,0);
        put(i,j) = max(5*i - stock(j),0);
    end
end
```

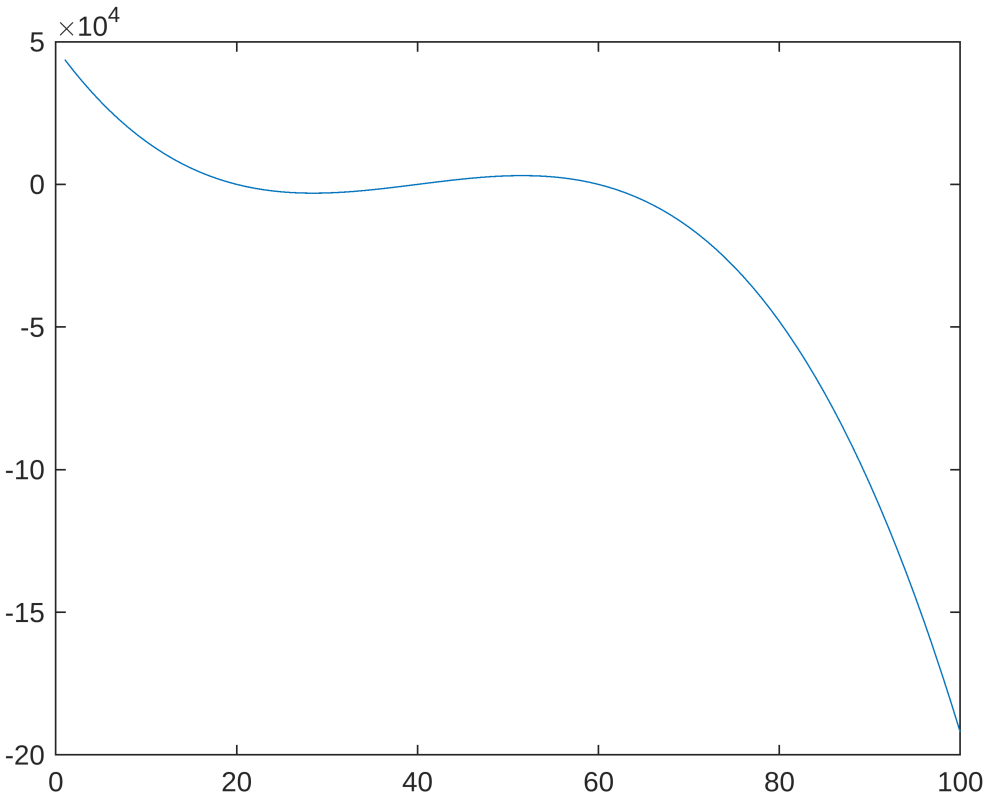
Import portfolio profile

```
data = readtable('Portfolio Surgery Test 1.xlsx');
```

```
Warning: Column headers from the file were modified to make them valid MATLAB identifiers
before creating variable names for the table. The original column headers are saved in the
VariableDescriptions property.
Set 'VariableNamingRule' to 'preserve' to use the original column headers as table variable names.
```

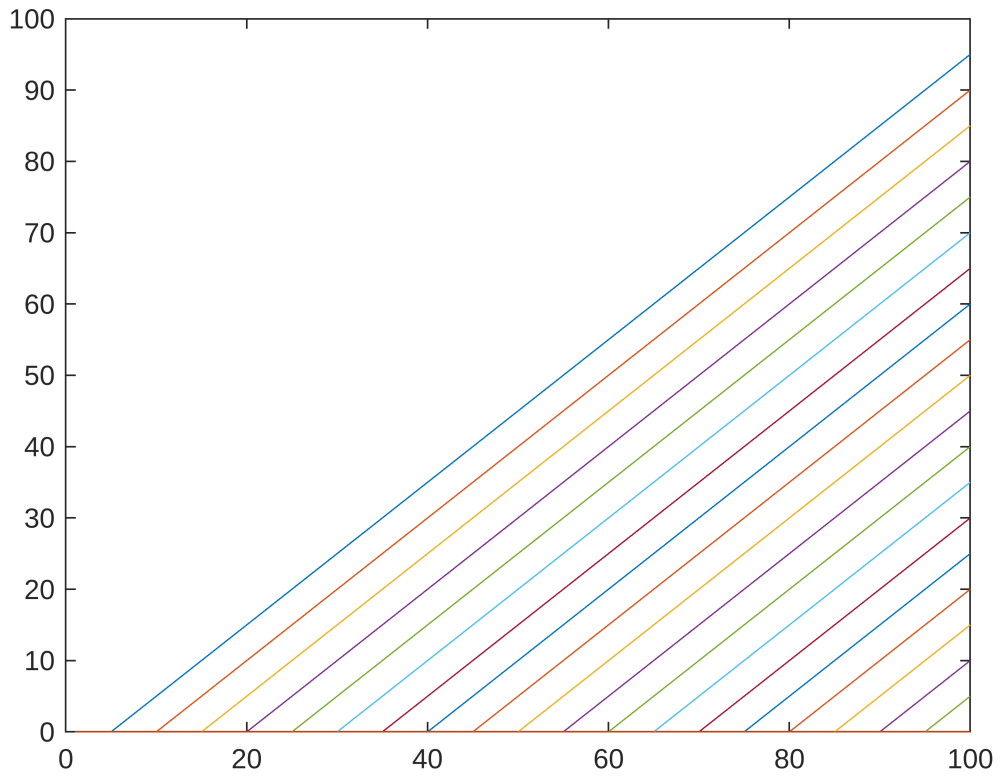
```
portfolio = data{:, 2}; % Second column for "Portfolio 1"


%% see portfolio payoff
plot(stock,portfolio)
```

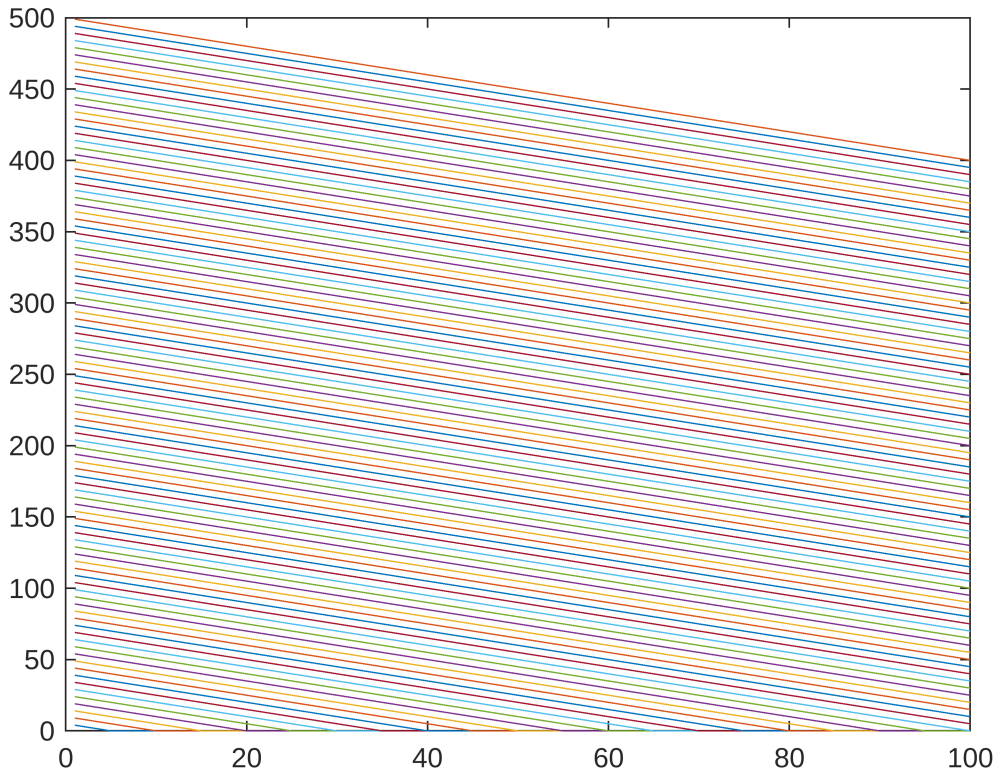


```
%% transpose
call = call';
put = put';

%% Calls?
plot(call);
```




```
%% puts??
plot(put);
```




```
%% create x vector
x = [call put];

%% take the negative piece of portfolio
negativeportfolio =min(portfolio,0);

%negativeportfolio = negativeportfolio';

%%
b = regress(negativeportfolio, x);
```

```
Warning: X is rank deficient to within machine precision.
```

```
%%
aftersurgery = portfolio - x*b;

%% plot and check!

plot(stock,portfolio);
hold on;
plot(stock, aftersurgery);

%% see piecewise linear approximation

optionpayoff = x*b;
plot(stock([1:100]), portfolio([1:100]));
```

```
hold on
plot(stock([1:100]),optionpayoff([1:100]));
hold off
```