```matlab
%18EX20030 UTKARSH JAISWAL
clear all
close all
clc
x=[1 1.269 1.6103 2.0434 2.5929 3.2903 4.1753 5.2983 6.7234 8.5317 10.826 13.738 17.433 22.122
y=[20.396 20.702 21.286 22.362 24.246 27.321 31.927 38.202 45.998 54.913 64.33 73.357 80.78 85.
loglog(x,y,'o')
xlabel('s')
ylabel('Rhoa')
hold on

fc=[0.00097112 -0.00102152 0.00906965 0.01404316 0.09012 0.30171582 0.99627084 1.3690832 -2.996
abs=[-0.980685 -0.771995 -0.563305 -0.354615 -0.145925 0.062765 0.271455 0.480145 0.688835 0.89
s=[1 1.269 1.6103 2.0434 2.5929 3.2903 4.1753 5.2983 6.7234 8.5317 10.826 13.738 17.433 22.122
n =4;
ns=length(s);
r=[19,540,20,196];
h=[2,3.2,39];

rt=[];
rhoa=[];
m=length(fc);
for i=1:ns;
for j=1:m;
    lam=10^(abs(j)-log10(s(i)));
    T=r(n);
    for nu=n-1:-1:1;
        T=(T+r(nu)*tanh(lam*h(nu)))/(1+(T*tanh(lam*h(nu)))/r(nu));
    end
    rt(j)=T;
end
rho=0;
for k=1:m;
    rho=rho+fc(k)*rt(k);
end
rhoa(i)=rho;
end
loglog(s,rhoa)
```
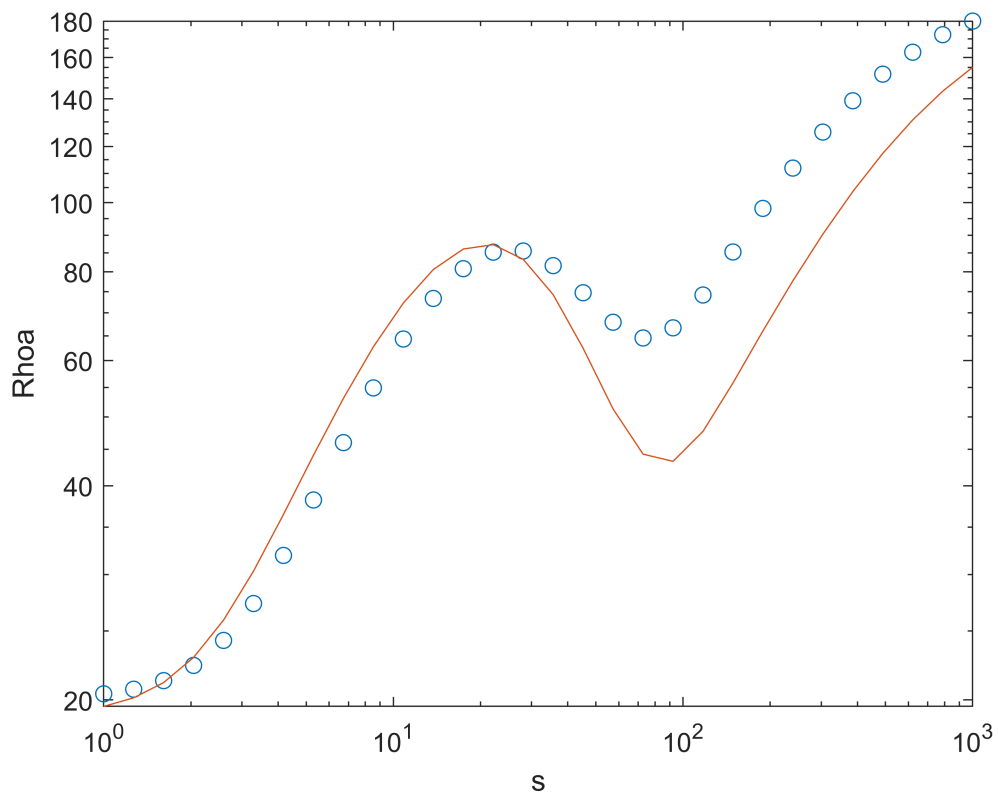
```
e=0;
for i = 1:length(x);
    e=e+((y(i)-rhoa(i))/y(i))^2;
end
misfit=100*((e/length(x))^0.5)
```

misfit = 19.8704

```matlab
%18EX20030 UTKARSH JAISWAL
clear all
close all
clc
x=[1 1.269 1.6103 2.0434 2.5929 3.2903 4.1753 5.2983 6.7234 8.5317 10.826 13.738 17.433 22.122
y=[20.396 20.702 21.286 22.362 24.246 27.321 31.927 38.202 45.998 54.913 64.33 73.357 80.78 85.
loglog(x,y,'o')
xlabel('s')
ylabel('Rhoa')
hold on

fc=[0.00097112 -0.00102152 0.00906965 0.01404316 0.09012 0.30171582 0.99627084 1.3690832 -2.996
abs=[-0.980685 -0.771995 -0.563305 -0.354615 -0.145925 0.062765 0.271455 0.480145 0.688835 0.89
s=[1 1.269 1.6103 2.0434 2.5929 3.2903 4.1753 5.2983 6.7234 8.5317 10.826 13.738 17.433 22.122
n =4;
ns=length(s);
r=[20.2,540,30,205];
h=[2.55,3.2,32];

rt=[];
rhoa=[];
m=length(fc);
for i=1:ns;
for j=1:m;
    lam=10^(abs(j)-log10(s(i)));
    T=r(n);
    for nu=n-1:-1:1;
        T=(T+r(nu)*tanh(lam*h(nu)))/(1+(T*tanh(lam*h(nu)))/r(nu));
    end
    rt(j)=T;
end
rho=0;
for k=1:m;
    rho=rho+fc(k)*rt(k);
end
rhoa(i)=rho;
end
loglog(s,rhoa)
```
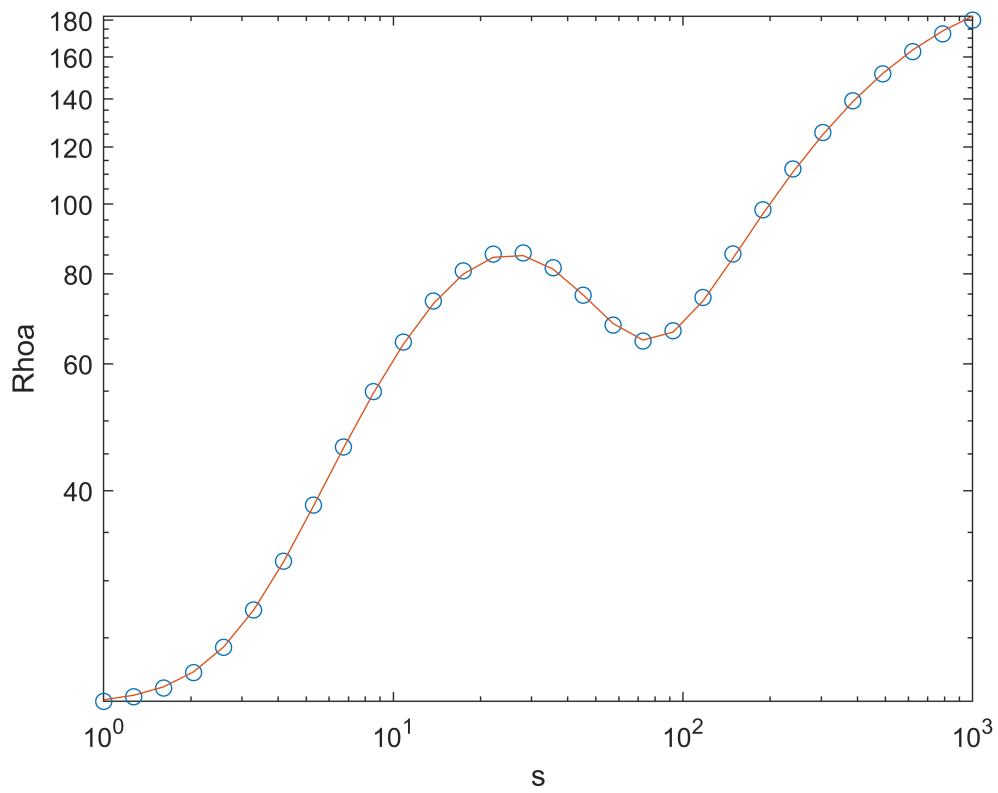
```
e=0;
for i = 1:length(x);
    e=e+((y(i)-rhoa(i))/y(i))^2;
end
misfit=100*((e/length(x))^0.5)
```

misfit = 0.7040

2

```matlab
%18EX20030 UTKARSH JAISWAL
clear all
clc
x=[1 1.269 1.6103 2.0434 2.5929 3.2903 4.1753 5.2983 6.7234 8.5317 10.826 13.738 17.433 22.122
y=[195.57 191.43 183.95 171.27 151.66 124.88 93.696 63.854 41.349 28.931 25.233 27.107 32.155 3
loglog(x,y,'o')
xlabel('s')
ylabel('pa')
hold on



fc=[0.00097112 -0.00102152 0.00906965 0.01404316 0.09012 0.30171582 0.99627084 1.3690832 -2.996
abs=[-0.980685 -0.771995 -0.563305 -0.354615 -0.145925 0.062765 0.271455 0.480145 0.688835 0.89
s=[1 1.269 1.6103 2.0434 2.5929 3.2903 4.1753 5.2983 6.7234 8.5317 10.826 13.738 17.433 22.122
n =4;
ns=length(s);
r=[195,12,256,39];
h=[2,4.5,47];

rt=[];
rhoa=[];
m=length(fc);
for i=1:ns;
for j=1:m;
    lam=10^(abs(j)-log10(s(i)));
    T=r(n);
    for nu=n-1:-1:1;
        T=(T+r(nu)*tanh(lam*h(nu)))/(1+(T*tanh(lam*h(nu)))/r(nu));
    end
    rt(j)=T;
end
rho=0;
for k=1:m;
    rho=rho+fc(k)*rt(k);
end
rhoa(i)=rho;
end
loglog(s,rhoa)
```
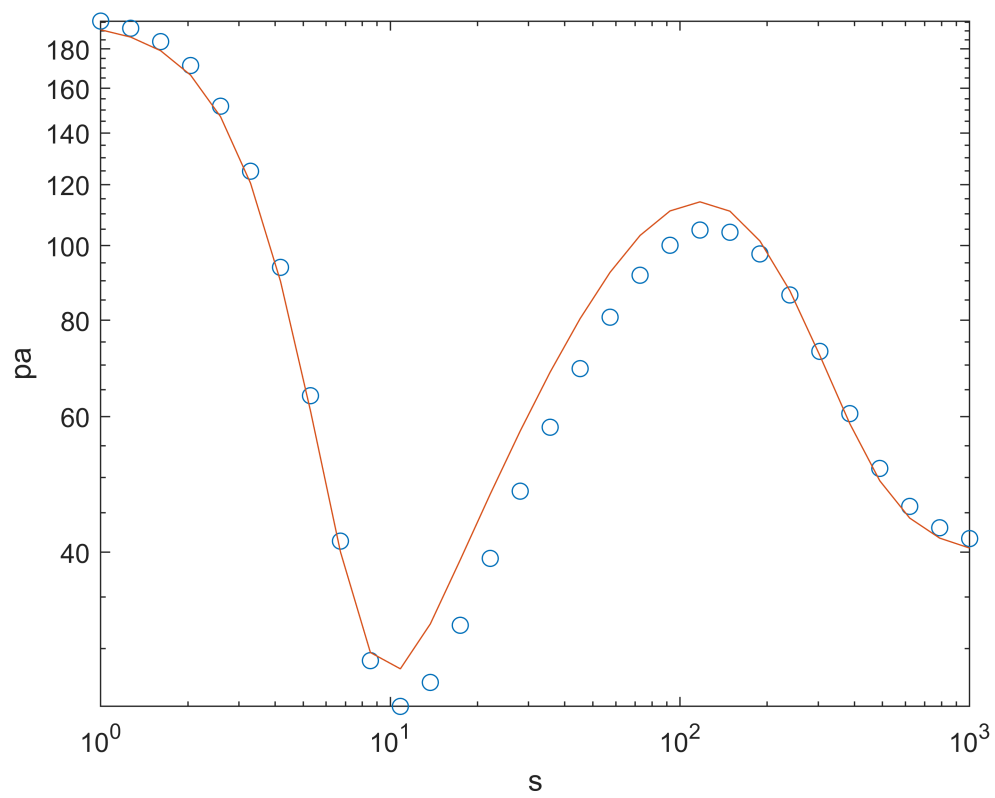
1

```
e=0;
for i = 1:length(x);
    e=e+((y(i)-rhoa(i))/y(i))^2;
end
misfit=100*((e/length(x))^0.5)
```

misfit = 10.2752

```matlab
%18EX20030 UTKARSH JAISWAL
clear all
clc
x=[1 1.269 1.6103 2.0434 2.5929 3.2903 4.1753 5.2983 6.7234 8.5317 10.826 13.738 17.433 22.122
y=[195.57 191.43 183.95 171.27 151.66 124.88 93.696 63.854 41.349 28.931 25.233 27.107 32.155 3
loglog(x,y,'o')
xlabel('s')
ylabel('pa')
hold on



fc=[0.00097112 -0.00102152 0.00906965 0.01404316 0.09012 0.30171582 0.99627084 1.3690832 -2.996
abs=[-0.980685 -0.771995 -0.563305 -0.354615 -0.145925 0.062765 0.271455 0.480145 0.688835 0.89
s=[1 1.269 1.6103 2.0434 2.5929 3.2903 4.1753 5.2983 6.7234 8.5317 10.826 13.738 17.433 22.122
n =4;
ns=length(s);
r=[200,12,258,40];
h=[2.1,5.5,45];

rt=[];
rhoa=[];
m=length(fc);
for i=1:ns;
for j=1:m;
    lam=10^(abs(j)-log10(s(i)));
    T=r(n);
    for nu=n-1:-1:1;
        T=(T+r(nu)*tanh(lam*h(nu)))/(1+(T*tanh(lam*h(nu)))/r(nu));
    end
    rt(j)=T;
end
rho=0;
for k=1:m;
    rho=rho+fc(k)*rt(k);
end
rhoa(i)=rho;
end
loglog(s,rhoa)
```
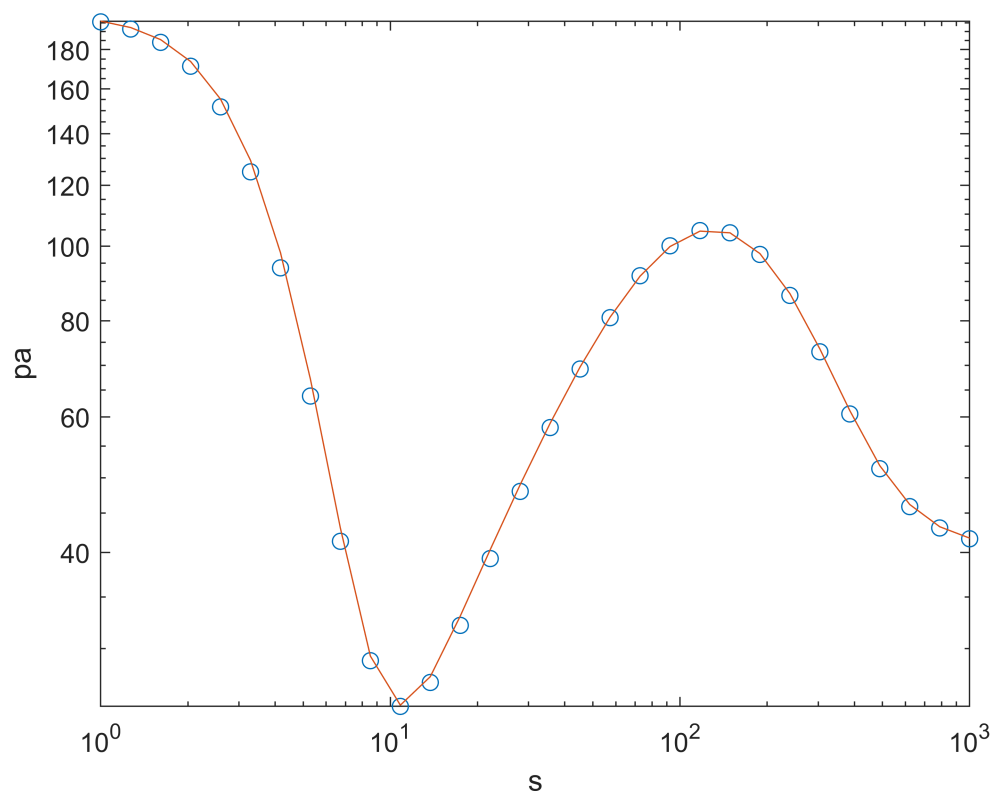
1

```
e=0;
for i = 1:length(x);
    e=e+((y(i)-rhoa(i))/y(i))^2;
end
misfit=100*((e/length(x))^0.5)
```

misfit = 1.9541