

Name: UTKARSH JAISWAL

Roll No: 18EX20030

Lab Test

```
%18EX20030 UTKARSH JAISWAL
```

```
clear all
```

```
close all
```

```
clc
```

```
xi=linspace(0,1000,51);
```

```
yi=[-77.92 -81.333 -85.055 -89.131 -93.612 -98.562 -104.06 -110.19 -117.09 -124.88 -133.77 -142.66];
```

```
plot(xi,yi,'*');
```

```
hold on;
```

```
k=282;
```

```
h=31;
```

```
a=53;
```

```
alpha=134*pi/180;
```

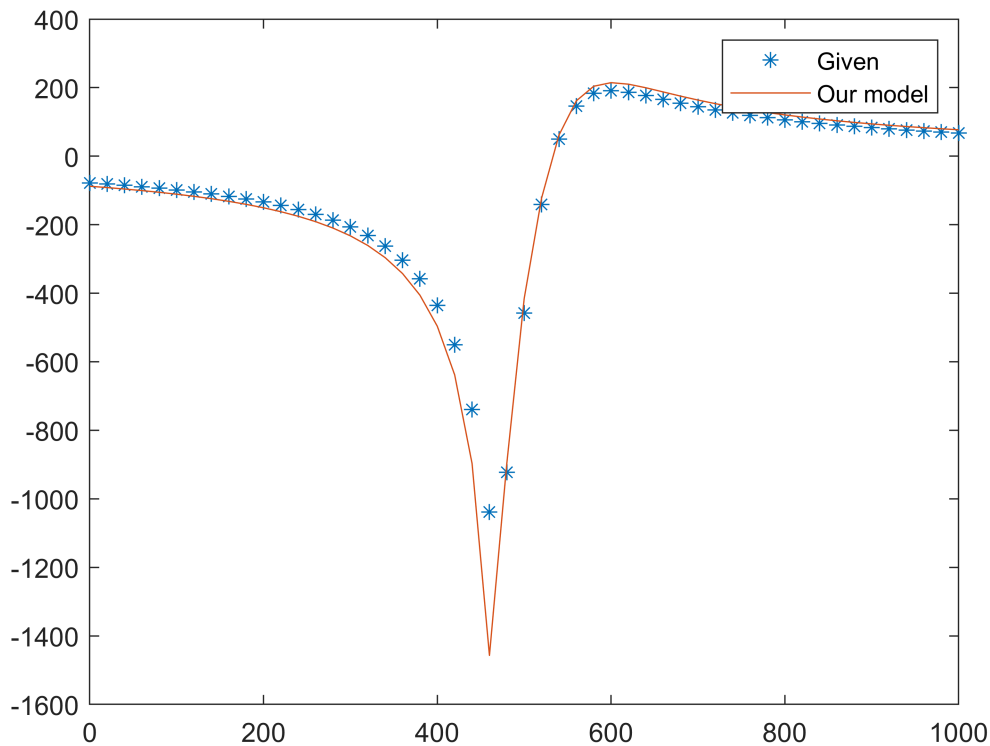
```
xo=500;
```

```
nume=((xi-xo)-(a*cos(alpha))).^2 + ((h-a*sin(alpha))^2);
```

```
deno=((xi-xo)+(a*cos(alpha))).^2 + ((h+a*sin(alpha))^2); V=k*log(nume./deno);
```

```
plot(xi,V);
```

```
legend('Given', 'Our model')
```



```
e=0;
```

```
for i = 1:length(xi)
```

```
    e=e+((yi(i)-V(i))/yi(i))^2;
```

```
end
```

```
error=100*((e/length(xi))^0.5)
```

```
error = 14.3555
```

```
%18EX20030 UTKARSH JAISWAL
```

```
clear all
```

```
close all
```

```
clc
```

```
xi=linspace(0,1000,51);
```

```
yi=[-77.92 -81.333 -85.055 -89.131 -93.612 -98.562 -104.06 -110.19 -117.09 -124.88 -133.77 -142.66];
```

```
plot(xi,yi,'*');
```

```
hold on;
```

```
k=280;
```

```
h=30;
```

```
a=50;
```

```
alpha=131.5*pi/180;
```

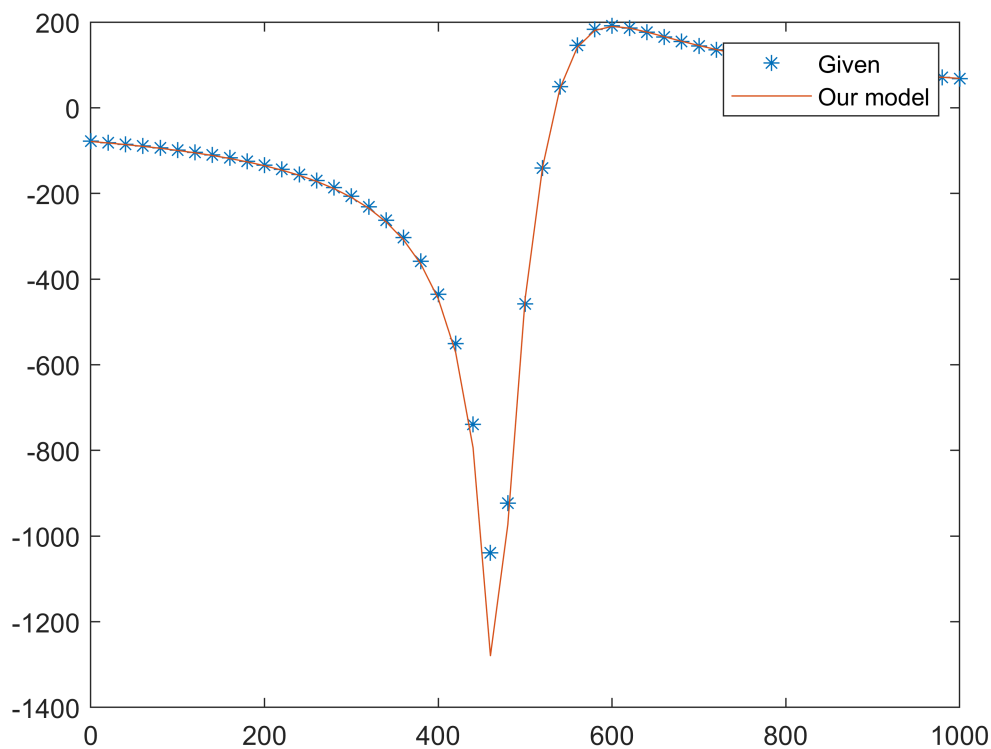
```
xo=500;
```

```
nume=((xi-xo)-(a*cos(alpha))).^2 + ((h-a*sin(alpha))^2);
```

```
deno=((xi-xo)+(a*cos(alpha))).^2 + ((h+a*sin(alpha))^2); V=k*log(nume./deno);
```

```
plot(xi,V);
```

```
legend('Given', 'Our model')
```



```
e=0;
```

```
for i = 1:length(xi)
```

```
    e=e+((yi(i)-V(i))/yi(i))^2;
```

```
end
```

```
error=100*((e/length(xi))^0.5)
```

```
error = 3.8890
```

Name: Utkarsh Jaiswal

Roll No: 18EX20030

	Initial Model	Final Model
k	282	280
xo	500	500
h	31	30
a	53	50
alpha	$134 \cdot \pi / 180$	$131.5 \cdot \pi / 180$
% Misfit error	14.3555	3.8890