**EXPERIMENT 9**

**REGRESSION METHODS**

**1. Exponential Regression Method**

Ques:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x | 1 | 2 | 3 | 4 | 5 |
| y | 1.6 | 4.5 | 13.8 | 40.2 | 125 |

**CODE**

clc

clear all

%y=a\*e^(b\*x)

%logy = loga + b\*x

n=input('enter the number of data values: ');

x=input('enter data for x: ');

y=input('enter data for y: ');

for i=1:n

Y(i)= log(y(i));

end

a=0;b=0;c=0;d=0;

for i=1:n

a=a+x(i);

b=b+Y(i);

c=c+x(i)\*Y(i);

d=d+x(i)\*x(i);

end

A=[n,a;a,d]

C=[b;c]

B=inv(A)\*C

slope=B(2,1)

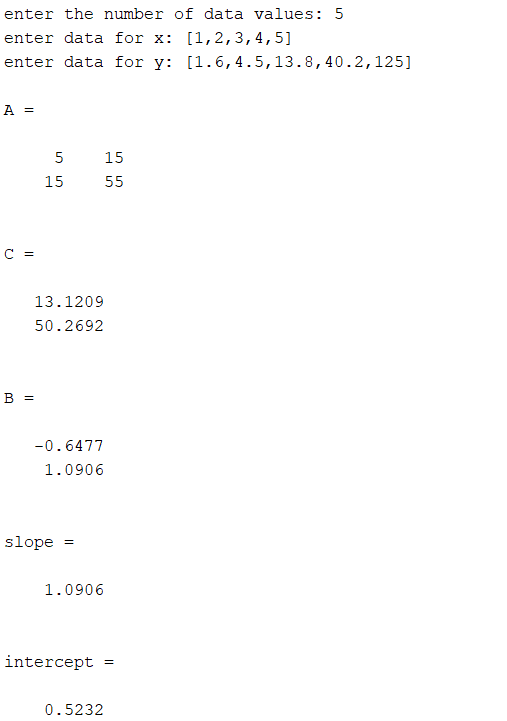
a1=exp(B(1,1));

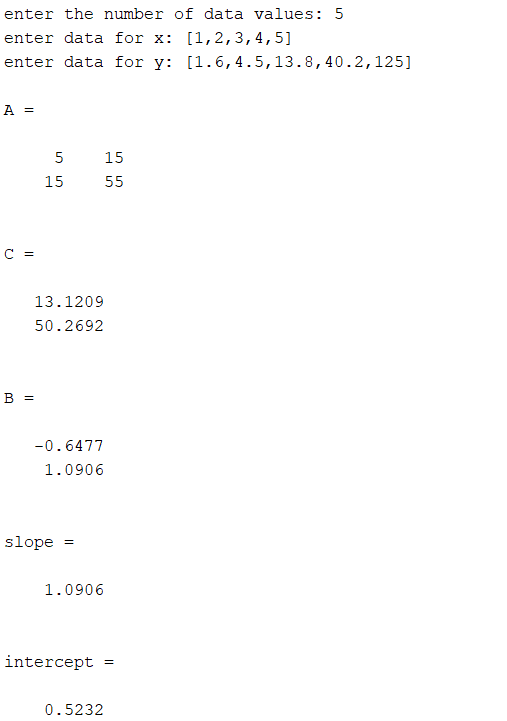
intercept=a1

y = intercept \* exp(slope\*x);

plot(y,x)

**OUTPUT**

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**GRAPH**

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**2. Logarithm Regression Method**

Ques:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x | 1 | 2 | 3 | 4 | 5 |
| y | 1.6 | 4.5 | 13.8 | 40.2 | 125 |

**CODE**

clc

clear all

%y=a\*(b^x)

%logy = loga + x\*logb

n=input('enter the number of data values: ');

x=input('enter data for x: ');

y=input('enter data for y: ');

for i=1:n

Y(i)= log(y(i));

end

a=0;b=0;c=0;d=0;

for i=1:n

a=a+x(i);

b=b+Y(i);

c=c+x(i)\*Y(i);

d=d+x(i)\*x(i);

end

A=[n,a;a,d]

C=[b;c]

B=inv(A)\*C

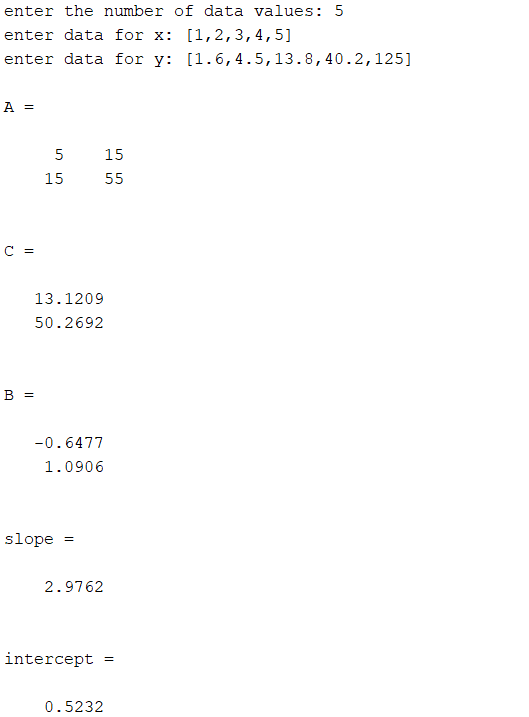
slope=exp(B(2,1))

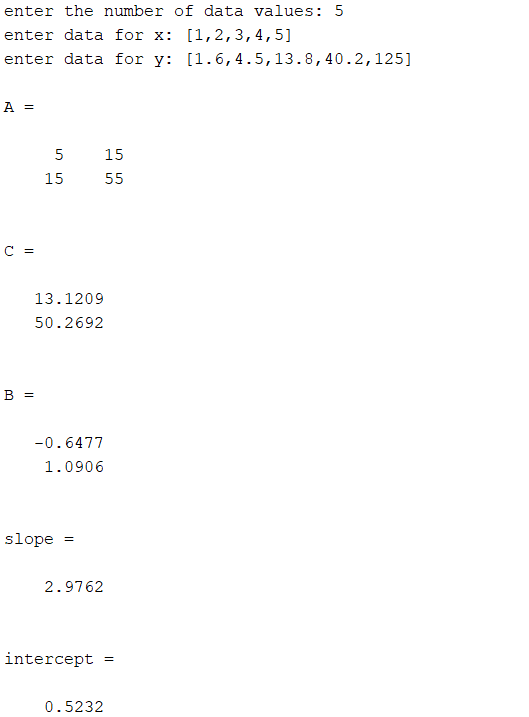
intercept=exp(B(1,1))

y = intercept \*((slope).^x);

plot(y,x)

**OUTPUT**

****

****

**GRAPH**

