# Gauss - Jordan Method To find Inverse

Find by Gauss Jordan Method:

$$A = \begin{bmatrix} 1 & 1 & 1 \\ 4 & 3 & -1 \\ 3 & 5 & 3 \end{bmatrix}$$

```
A =[1,1,1;4,3,-1;3,5,3];
n =length(A(1,:));
Aug =[A,eye(n,n)]
for j=1:n-1
for i=j+1:n
Aug(i,j:2*n)=Aug(i,j:2*n)-
Aug(i,j)/Aug(j,j)*Aug(j,j:2*n)
end
end
for j=n:-1:2
Aug(1:j-1,:)=Aug(1:j-1,:)-Aug(1:j-
1,j)/Aug(j,j)*Aug(j,:)
end
```

# Gauss - Jordan Method To find Inverse

```
for j=1:n
Aug(j,:)=Aug(j,:)/Aug(j,j)
end
B=Aug(:,n+1:2*n)
```

# Gauss - Jordan Method To find Inverse

OUTPUT:

Aug =

```
1 1 1 1 0 0
4 3 -1 0 1 0
3 5 3 0 0 1
```

Aug =

```
1 1 1 1 0 0
0 -1 -5 -4 1 0
3 5 3 0 0 1
```

Aug =

```
1 1 1 1 0 0
0 -1 -5 -4 1 0
0 2 0 -3 0 1
```

Aug =

```
1 1 1 1 0 0
0 -1 -5 -4 1 0
0 0 -10 -11 2 1
```

Aug =

```
1.0000 1.0000 0 -0.1000 0.2000 0.1000
0 -1.0000 0 1.5000 0 -0.5000
0 0 -10.0000 -11.0000 2.0000 1.0000
```

Aug =

```
1.0000 0 0 1.4000 0.2000 -0.4000
0 -1.0000 0 1.5000 0 -0.5000
0 0 -10.0000 -11.0000 2.0000 1.0000
```

Aug =

```
1.0000 0 0 1.4000 0.2000 -0.4
0 -1.0000 0 1.5000 0 -0.5000
0 0 -10.0000 -11.0000 2.0000
```

Aug =

```
1.0000 0 0 1.4000 0.2000 -0.4
0 1.0000 0 -1.5000 0 0.5000
0 0 -10.0000 -11.0000 2.0000
```

Aug =

```
1.0000 0 0 1.4000 0.2000 -0.4
0 1.0000 0 -1.5000 0 0.5000
0 0 1.0000 1.1000 -0.2000 -0.
```

B =

```
1.4000 0.2000 -0.4000
-1.5000 0 0.5000
1.1000 -0.2000 -0.1000
```

Practice Problems:

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 1 & 2 & 4 \\ 1 & 1 & 5 \end{bmatrix}$$

$$A = \begin{bmatrix} -1 & 2 & 6 \\ -1 & -2 & 4 \\ -1 & 1 & 5 \end{bmatrix}$$