

```
>> % To find the stable distribution
>>% for Women in workforce
>> S=[-0.2 0.3 0; 0.2 -0.3 0; 1 1 1]
```

```
S =
```

```
-0.2000 0.3000 0
0.2000 -0.3000 0
1.0000 1.0000 1.0000
```

```
>> rref(S)
```

```
ans =
```

```
1.0000 0 0.6000
0 1.0000 0.4000
0 0 0
```

$x = .6$   
 $y = .4$

Solve the System of Equations:

$$\begin{cases} .8x + .3y = x \\ .2x + .7y = y \\ x + y = 1 \end{cases}$$

Stable Distribution is  $\begin{bmatrix} .6 \\ .4 \end{bmatrix}$

```
>> % Flu epidemic Stable distribution
>> S=[-2/3 1/4 0; 2/3 -1/4 0; 1 1 1]
```

```
S =
```

```
-0.6667 0.2500 0
0.6667 -0.2500 0
1.0000 1.0000 1.0000
```

```
>> rref(S)
```

```
ans =
```

```
1.0000 0 0.2727
0 1.0000 0.7273
0 0 0
```

$x = .2727$   
 $y = .7273$

Stable Distribution  $\begin{bmatrix} .2727 \\ .7273 \end{bmatrix}$

System to find stable distribution:

$$\begin{cases} \frac{1}{3}x + \frac{1}{4}y = x \\ \frac{2}{3}x + \frac{3}{4}y = y \\ x + y = 1 \end{cases}$$

```
>> .2727*48000
```

```
ans =
```

```
1.3090e+04
```

```
>> .7273*48000
```

```
ans =
```

```
3.4910e+04
```

For a total of 48,000 people  
the stable distribution is

$\begin{bmatrix} 13090 \\ 34910 \end{bmatrix}$