

Last login: Thu Mar 3 09:31:48 on ttys001
/Users/eisen/sage/sage ; exit;
Friedrich-Eisenbrands-MacBook-Pro:~ eisen\$ /Users/eisen/sage/sage ; exit;

```
-----  
| Sage Version 4.6, Release Date: 2010-10-30 |  
| Type notebook() for the GUI, and license() for information. |  
-----
```

```
sage: A = matrix(QQ,3,5,[2,1,7,-7,2, -3, 4, -5, -6, 3, 1,1,4,-5,2])  
sage: A  
[ 2  1  7 -7  2]  
[-3  4 -5 -6  3]  
[ 1  1  4 -5  2]  
sage: A.rescale_row(0,1/2)  
sage: A  
[  1  1/2  7/2 -7/2  1]  
[ -3   4  -5  -6   3]  
[  1   1   4  -5   2]  
sage: A.add_multiple_of_row(1,0,3)  
sage: A  
[  1  1/2  7/2 -7/2  1]  
[  0 11/2 11/2 -33/2  6]  
[  1   1   4  -5   2]  
sage: A.add_multiple_of_row(2,0,-1)  
sage: A  
[  1  1/2  7/2 -7/2  1]  
[  0 11/2 11/2 -33/2  6]  
[  0  1/2  1/2 -3/2  1]  
sage: A.rescale_row(1,2/11)  
sage: A  
[  1  1/2  7/2 -7/2  1]  
[  0   1   1  -3 12/11]  
[  0  1/2  1/2 -3/2  1]  
sage: A.add_multiple_of_row(2,1,-1/2)  
sage: A  
[  1  1/2  7/2 -7/2  1]  
[  0   1   1  -3 12/11]  
[  0   0   0   0 5/11]  
sage: A.add_multiple_of_row(0,1,-1/2)  
sage: A  
[  1   0   3  -2 5/11]  
[  0   1   1  -3 12/11]  
[  0   0   0   0 5/11]  
sage: A = matrix(QQ,3,5,[2,1,7,-7,2, -3, 4, -5, -6, 3, 1,1,4,-5,2])  
sage: A  
[ 2  1  7 -7  2]  
[-3  4 -5 -6  3]  
[ 1  1  4 -5  2]  
sage: U =matrix(QQ,2,2)  
sage: U =matrix(QQ,3,3)  
sage: U  
[0 0 0]  
[0 0 0]  
[0 0 0]  
sage: U[0,0]=1  
sage: U[1,1]=1  
sage: U[2,2]=1  
sage: U  
[1 0 0]  
[0 1 0]  
[0 0 1]  
sage: A  
[ 2  1  7 -7  2]  
[-3  4 -5 -6  3]  
[ 1  1  4 -5  2]  
sage: U.rescale_row(0,1/2)  
sage: A.rescale_row(0,1/2)  
sage: A  
[  1  1/2  7/2 -7/2  1]  
[ -3   4  -5  -6   3]  
[  1   1   4  -5   2]  
sage: U  
[1/2  0  0]  
[  0  1  0]  
[  0  0  1]  
sage: U.add_multiple_of_row(1,0,3)  
sage: A.add_multiple_of_row(1,0,3)
```

```
sage: A
[ 1  1/2  7/2 -7/2  1]
[  0 11/2 11/2 -33/2 6]
[  1  1  4 -5  2]
sage: B
```

```
NameError Traceback (most recent call last)
```

```
/Users/eisen/<ipython console> in <module>()
```

```
NameError: name 'B' is not defined
sage: B
```

```
NameError Traceback (most recent call last)
```

```
/Users/eisen/<ipython console> in <module>()
```

```
NameError: name 'B' is not defined
```

```
sage: U
[1/2  0  0]
[3/2  1  0]
[ 0  0  1]
```

```
sage: A
[ 1  1/2  7/2 -7/2  1]
[  0 11/2 11/2 -33/2 6]
[  1  1  4 -5  2]
```

```
sage: U.add_multiple_of_row(2,0,-1)
sage: A.add_multiple_of_row(2,0,-1)
```

```
sage: A
[ 1  1/2  7/2 -7/2  1]
[  0 11/2 11/2 -33/2 6]
[  0  1/2  1/2 -3/2  1]
```

```
sage: U.rescale_row(1,2/11)
sage: A.rescale_row(1,2/11)
```

```
sage: U
[ 1/2  0  0]
[3/11 2/11  0]
[-1/2  0  1]
```

```
sage: A
[ 1  1/2  7/2 -7/2  1]
[  0  1  1 -3 12/11]
[  0  1/2  1/2 -3/2  1]
```

```
sage: U.add_multiple_of_row(2,1,-1/2)
sage: A.add_multiple_of_row(2,1,-1/2)
```

```
sage: U
[ 1/2  0  0]
[ 3/11 2/11  0]
[-7/11 -1/11  1]
```

```
sage: A
[ 1  1/2  7/2 -7/2  1]
[  0  1  1 -3 12/11]
[  0  0  0  0  5/11]
```

```
sage: U
[ 1/2  0  0]
[ 3/11 2/11  0]
[-7/11 -1/11  1]
```

```
sage: A = matrix(QQ,3,5,[2,1,7,-7,2, -3, 4, -5, -6, 3, 1,1,4,-5,2])
```

```
sage: U*A
[ 1  1/2  7/2 -7/2  1]
[  0  1  1 -3 12/11]
[  0  0  0  0  5/11]
```

```
sage:
```