

In [1]:

```
from sympy import *
import matplotlib.pyplot as plt
import numpy as np
```

In [2]:

```
axis_range = np.ma.masked_equal(np.arange(-3,3,0.25),0) # Equally spaced by 0.25 points
between -3 and 3 (except 0 to ensure no division by 0 when calculating U or V)
X1, X2 = np.meshgrid(axis_range, axis_range)
X1p = 2*X1-1*X2
X2p = 3*X1-2*X2
#Normalize the arrows by dividing by their magnitude (focus on direction)
U=1/(X1p**2+X2p**2)**(0.5)*X1p
V=1/(X1p**2+X2p**2)**(0.5)*X2p
plt.figure()
plt.title('Phase Plane for [[2,-1],[3,-2]]')
Q = plt.quiver(X1, X2, U, V) # draws the normalized arrows at (X,Y) with slope dYdX
```

