

Classical Mechanics - Assignment 1

August 21, 2018

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In [1]: import numpy as np, scipy, matplotlib.pyplot as plt
        plt.style.use('presentation')
```

0.1 Problem 1

0.1.1 Part (b) - The problem is of a particle moving in potential $V(x) = \alpha x^2/2 + \beta x^4/4$

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In [2]: def V(alpha,beta,x):
        x = np.asarray(x)
        return alpha*x**2 + beta*x**4

        params = [[3,-1],[-3,1],[0.25,0.25]]
        x = np.linspace(-2,2,100)

        plt.figure(figsize=(4,4))

        for parameter in params:
            alpha, beta = parameter
            plt.plot(x,V(alpha,beta,x),label=r'$\alpha = %s, \beta = %s$'%(alpha,beta))
        plt.xlabel('$x$')
        plt.ylabel('$V(x)$')
        plt.legend()
```

```
Out [2]: <matplotlib.legend.Legend at 0x7f1b1ea6e210>
```

