Quiz 2 Solutions EML4930/6934, Python Programming, Fall 2017

Name:

Problem 1.(2 points.) Consider an object named my_rocket_ship. What is one way to list all of the attributes (and methods) within the object my_rocket_ship?

```
dir(my_rocket_ship)
```

or

```
my_rocket_ship.__dir__() # only works with new Python objects
```

Problem 2.(2 points.) z is a one dimensional numpy array. How would you find the index location of the maximum value in z? (**Hint**: There is a function in numpy to do this. You can attempt to write a search function in Python for full points, but please use the numpy function if you remember it.)

```
import numpy as np
np.argmax(z)
```

or

```
z.argmax()
```

or

```
# search function
maxVal = z.max()
for i,j in enumerate(z):
    if j == maxVal:
        max_val_index = i
        break
```

Problem 3.(6 points.) Plot the function

$$y(x) = x^3 + 2x + 10.0 \tag{1}$$

on the domain

$$10 \leq x \leq 19 \tag{2}$$

using Python. Include all necessary imported libraries. (In order to get full points, I should be able to see the figure after executing your code from the standard Python interpreter.)

```
import numpy as np
import matplotlib.pyplot as plt
x = np.linspace(10.0, 19.0, 1000)
# x doesn't have to be linspace, but any reasonable
# interpretation of the domain
y = x**3 + 2*x + 10.0
plt.figure()
plt.plot(x,y)
plt.show()
# You need plt.show() in order to display the figure
# from standard Python interpreter
```