

MTH 337 Intro to Scientific computing

SAMPLE QUIZ #7

Fall 2020

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The Sample Quiz is for you to practice for the quiz that will be at the end of class on Monday on Gradescope.

For the remainder of this quiz assume that the following code has been executed:

```
import matplotlib.pyplot as plt
import numpy as np
```

- (1) Write the code that creates an one-dimensional array `a` with numbers from 0 to 8. Print to screen the array containing the values of the array greater than 2, and not greater than 6.
- (2) Write the code that creates a 3x4 array `a` with numbers from 0 to 11. Use boolean indices to set all of the entries of `a`, that are less than 2 or greater than 8, equal to 0.
- (3) For the remainder of this quiz assume that the following code has been executed:

```
import matplotlib.pyplot as plt
import numpy as np
imga=np.random.rand(5,4,3)
```

write the code that makes a copy of `imga` (call the copy `imgb`), and changes to black all the pixels where the red component of the image is greater than 0.5. Use boolean indices.
- (4) Write the code that makes a copy of `imga` (call the copy `imgc`), and changes to 1 the blue component of all the pixels where the green component of the image is between 0.1 and 0.7. Use boolean indices.