1. Create an array of zeros 2/3 rows/columns
2. create a 3d array where all dimensions have size 3. Fill it with 7s. test you are correct with the ‘.shape’ function. (define 3d? 😊)
3. Create an array of ones using the random array to specify the dimensions
4. Create an 3 dimensional array of 1’s with a 3,2,3 shape
5. Create a 4x4 identity matrix
6. create an array of 10 evenly spaced values between 3 and 7
7. Create a 3dimensional array with random values with shape 3,3?
8. Create an empty 3 Dimensional array with 2 layers (do you mean rows? Nope get good kid ` Wdym layers?), each having 3 rows and 3 columns (it’ll probably give weird numbers dw) (disappointing)
9. Create a 3d array with a shape of (1,4,3)
10. Create a 2x3 array with 0 ( Same as question 1 ?!?!)= (c
11. Create a 2d array of 7s with shape 2,4
12. Create an identity matrix with 5 rows and 5 columns
13. Create an array with 9 evenly spaced values between 5 and 40
14. Create a 1D array of values ranging from 10 to 49
15. Create the following array with numpy and return Only the number 5: [[1,2,3], [4,5,6], [10,11,12]]
16. Create an array of ones with 8 rows and 4 columns
17. Create a 4x4x4 array with elements equal to 6?
18. Create an array with random numbers with 2/3 rows/columns
19. Create a 3x3 array with all 1s
20. Create an empty 2by2 matrix.

**Indexing and Slicing Questions**

1. Form a slice of inner number ( output should be array([[2,3,4]])
2. Slice a 2x2 matrix from a 3x3 matrix
3. Create a 3x3 array and output the 2nd row, 2nd column
4. Make a new array using the 2nd row and 3rd row from the following array:

array = [[1,2,3],[4,5,6], [7,8,9],[10,11,12]]

1. Get a 3x3 identity matrix from a 5x5 identity matrix

**Boolean Questions**

1. Create an array between 1 and 20 using arange. Convert this to an array of Boolean values on the condition that the number is even.
2. Create an array using ‘np.arange’ with a range of 10. Use Boolean indexing to show whether values are less than 7.
3. Return all values that are true from Boolean arrays above

Advanced…ish questions (use stack overflow, or python documentation)

1. Create a 2d array with shape (3,2)

(save the following as new variables)

-Reshape the array to a new shape to (2,3)

-Transpose the array

-Override all values in the array with random numbers (generated using random.randint)

-Flatten the array. What does it mean to flatten the array?

b. Create two 2D arrays with shape (3,2)

-add array a and b using a numpy function

-subtract array a and b using a numpy function

-multiply array a and b using a numpy function

-Divide array a and b using a numpy function

c- Create an array with random numbers with shape (3,4)

-What is the minimum of each row (\*use a numpy function)

-What is the maximum of each row (\*use a numpy function)

-Find the exponential of all values in the array

-Round down all values in the array

-Round up all value in the array

-Round to 2 decimal places

d- Create an array that looks like this [2,3,4] (These questions are on adding parameters)

-**Without** changing the number of square brackets in the syntax, change the minimum dimensions to a 3D array

-Add a parameter to the array that makes the elements complex

-Create an ‘empty’ array of shape (3,3) that only has integers

-Grab the last column of the array

**Extra Questions (please work through these after lab 1)**

**4.30pm James and Jasmine please go through last three questions**

-Initialise a 2D 4by 4 array with random integers

Loop through the array, if even replace elements with 5, if odd, leave the element alone

**USE APPEND**

-I own a shop with 20 items of price ranging from £5-£150

If any values are bigger than £50 reduce the values by 20%

-Initialise a 1D array with a random length and random values

Look through the whole length of the array and check if the values are bigger than 5. Return all values that a greater than 5

-Create an **actually empty** array using this syntax

z =np.array([])

append values [1,2,3] into the array

-Create an **actually empty** 2Darray

Assign 10 random values into it

-Create two 3 by 2 arrays called a and b

Concatenate these arrays using a Numpy Function