Python Exam Practice Questions:

Name 2 errors with this piece of code:
 	
`import numpy`
 	
`y = np.arange(3, -3, 2)`	

Under what condition will the print statement be executed:
 	
`i = ?`
`if i == 0 and i == 1:`
`  print("EXECUTED SUCCESSFULLY")`	

Under what condition will the print statement be executed:
 	
`i = ?`
`if i == 0 or i == 1:`
`  print("EXECUTED SUCCESSFULLY")`	

What is executed here:
 	
`for i in range(10):`
`  if i % 2 == 0:`
`  print(i)`	

What is printed here:
 	
`import numpy as np`
`val = [0, 10, 2, 4, 7, 1, 4, 6, 8]`
`a = np.min(val)`
`b = np.quantile(val, 0.25)`
`c = np.quantile(val, 0.50)`
`d = np.quantile(val, 0.75)`
`e = np.max(val)`
`print(a + b + c + d + e)`
`print(a,b,c,d,e)`	

Which values are impossible for this to output:
 	
`np.random.rand(2)`
 	
`a) 0.0`
`b) 0.25`
`c) 1.99`
`d) 2.0`	

What do these commands do to a graph?
 	
`plt.xlabel( 'dimension 1' );`
`plt.ylabel( 'dimension 2' );`	

What is the output:	

tmp = np.zeros((3 // 2) * 8) print(tmp)	
What is the output (hint: order of operations): print((np.mean([1, 4, 7]) * 3) ** 1/2)	
Write a function that concatenates two lists. ['a','b','c'], [1,2,3] → [a,b,c,1,2,3]	
What is wrong with this code for this diffential equation with u(1) = 3: t = Symbol("t") u = Function("u")(u) de = Eq(u.diff(t) + 1 / t * u, np.e ** t) solution = dsolve(de, u, ics={u.subs(t, 1):3})	
What is printed here: weight = [0, 1, 2, 3, 4, 5] G = weight[0:2] V = weight[2:4] W = weight[4:] print(V, G, W)	

What is wrong with this function?
 	
function a(n):
  n = a / 2
  return n	

What does this function do?
 	
def mystery_func(n, a):
  if n / a == 0:
  return True
  else:
  return False	

Am you going to nail this exam?	

A Math Midterm Python Question Review:

16. (1 point) Running the following lines of code:

```
import numpy
3*2**numpy.cos(numpy.pi)
```

would result in what output from Python?

A. 3.0

B. 2.0

C. 1.0

D. 1.5

E. 0.0

$3^2 \cos \pi$

$9 \cos \pi$

$9(0)$

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17. (1 point) Running the following lines of code:

```
import numpy
x = numpy.linspace( -5, 5, 99 )
print( x[49] )
```

would result in what output from Python?

A. -0.1

B. 0.0

C. 0.1

D. -0.5

E. 0.5

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18. (1 point) Running the following lines of code:

```
a = 0
for i in range(3):
  a = i+3
print(a)
```

would result in what output from Python?

A. 10

B. 3

C. 2

D. 8

E. 5

i = 0
a = 0+3
i = 1
a = 1+3
i = 2
a = 2+3

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19. (1 point) Consider the differential equation $-u'(t) + u(t) = 0$. Which line of code would correctly define this equation in SymPy and assign to a variable de?

A. `de = Eq( -u.diff(t)- u, t )`

B. `de = Eq( -u.diff(t)- u, 0 )`

C. `de = Eq( u.diff(t)- t*u, 0 )`

D. None of the other options provided is correct.

E. `de = Function( '-u.diff(t)- u', '0')`