Problem 2

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Problem 2-1

1 point possible (graded)

You have the following class hierarchy:

```
class A(object):
    def foo(self):
        print('hi')
class B(A):
    def foo(self):
        print('bye')
```

Which of the following is correct?

- ◯ When `a = A()` we say that `a` is an instance of `A`
- ◯ When `b = B()` we say that `b` is a subclass of `A`
- ◯ Both of the above
- ◯ Neither of the above

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Problem 2-2

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Consider the function `f` below. What is its Big O complexity?

```
def f(n):
    def g(m):
        m = 0
        for i in range(m):
            print(m)
    for i in range(n):
        g(n)
```

- ○
- ○
- ○
- ○

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Problem 2-3

1 point possible (graded)

A dictionary is an immutable object because its keys are immutable.

- ○ True
- ○ False because its keys can be mutable

◯ False because a dictionary is mutable

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Problem 2-4

1 point possible (graded)

Consider the following two functions and select the correct choice below:

```
def foo_one(n):
    """ Assume n is an int >= 0 """
    answer = 1.0
    while n > 1:
        answer *= n
        n -= 1
    return answer

def foo_two(n):
    """ Assume n is an int >= 0 """
    if n <= 1:
        return 1.0
    else:
        return n*foo_two(n-1)
```

◯ The worst case Big Oh time complexity of `foo_one` is worse than the worst case Big Oh time complexity of `foo_two`.

◯ The worst case Big Oh time complexity of `foo_two` is worse than the worst case Big Oh time complexity of `foo_one`.

◯ The worst case Big Oh time complexity of `foo_one` and `foo_two` are the same.

◯ Impossible to compare the worst case Big Oh time complexities of the two functions.

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Problem 2-5

1 point possible (graded)

The complexity of is

- ◯ constant
- ◯ logarithmic
- ◯ linear
- ◯ polynomial
- ◯ exponential

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