Week 1 Quiz: The Python Memory Model

1. For each program below, what is the output? If the code generates an error, say so.

```python
def fun1(that, other):
    that[1] = 99
    other[1] = 99

if __name__ == '__main__':
    ages = (4, 5, 6)
    grades = [10, 11]
    fun1(ages, grades)
    print(ages, grades)

def fun2(stuff, junk):
    stuff = stuff + ['hi!']
    junk = junk + 1

if __name__ == '__main__':
    letters = ['a', 'b', 'c']
    age = 6
    fun2(letters, age)
    print(letters, age)
```
2. Read the docstring for the function below. (Recall that at the end of a tuple with just one element we add a comma, in order to distinguish it from an integer that happens to be in brackets.)

```python
def add_on(lst: List[Tuple], new: Any) -> None:
    """Add new to the end of each tuple in lst.
    >>> things = [(), (1, 2), (1,)]
    >>> add_on(things, 99)
    >>> things
    [(99,), (1, 2, 99), (1, 99)]
    >>> things = []
    >>> add_on(things, 99)
    >>> things
    []
    >>> things = [(), (), ()]
    >>> add_on(things, 99)
    >>> things
    [(99,), (99,), (99,)]
    ""
```

Below are three possible bodies for this function. For each, fill in the blank so that the function will satisfy the doctest examples. If this is not possible, explain why.

(a) for i in range(len(lst)):

    lst[i] = ________________________________

(b) for item in lst:

    item. ________________________________

(c) for item in lst:

    item = ________________________________