Programming Tests and Intervals

Confidence Intervals

```python
#Complete conf function to return a conference interval on list l
from math import sqrt

def mean(l):
    return float(sum(l))/len(l)

def var(l):
    m = mean(l)
    return sum([(x-m)**2 for x in l])/len(l)

def factor(l):
    return 1.96


def conf(l):
    #Insert your code here
    return factor(l)*sqrt(var(l)/len(l))
```

Hypothesis Test

```python
#Complete the test function to perform a hypothesis test
#on list l under the null that the mean is h

from math import sqrt

def mean(l):
    return float(sum(l))/len(l)

def var(l):
    m = mean(l)
    return sum([(x-m)**2 for x in l])/len(l)

def factor(l):
    return 1.96


def conf(l):
    return factor(l) * sqrt(var(l) / len(l))


def test(l, h):
    #Insert your code here
    return (h>mean(l)-conf(l)) and (h<mean(l)+conf(l))
```