

**6.00 Handout, Lecture 5**  
**(Not intended to make sense outside of lecture)**

```
def solve(numLegs, numHeads):
    for numChicks in range(0, numHeads + 1):
        numPigs = numHeads - numChicks
        totLegs = 4*numPigs + 2*numChicks
        if totLegs == numLegs:
            print 'Number of pigs: ' + str(numPigs) + ',',
            print 'Number of chickens:', numChicks
            return
    print 'There is no solution.'
```

```
def solve1(numLegs, numHeads):
    for numSpiders in range(0, numHeads + 1):
        for numChicks in range(0, numHeads - numSpiders + 1):
            numPigs = numHeads - numChicks - numSpiders
            totLegs = 4*numPigs + 2*numChicks + 8*numSpiders
            if totLegs == numLegs:
                print 'Number of pigs: ' + str(numPigs) + ',',
                print 'Number of chickens: ' + str(numChicks) + ',',
                print 'Number of spiders:', numSpiders
                return
    print 'There is no solution.'
```

```
def solve2(numLegs, numHeads):
    solutionFound = False
    for numSpiders in range(0, numHeads + 1):
        for numChicks in range(0, numHeads - numSpiders + 1):
            numPigs = numHeads - numChicks - numSpiders
            totLegs = 4*numPigs + 2*numChicks + 8*numSpiders
            if totLegs == numLegs:
                print 'Number of pigs: ' + str(numPigs) + ',',
                print 'Number of chickens: ' + str(numChicks) + ',',
                print 'Number of spiders:', numSpiders
                solutionFound = True
    if not solutionFound: print 'There is no solution.'
```

```
def squareRoot(x, epsilon):
    """Return y s.t. y**2 is within epsilon of x"""
    x = float(x)
    guess = x/2
    diff = x - (guess*guess)
    while abs(diff) > epsilon:
        print guess, diff
        guess = (guess + x/guess)/2
        diff = x - (guess*guess)
    return guess
```