

## Problem 1: simple lists

Note: `L.index(x)` will return the index of `x` within list `L`, or crash if `x` is not in the list.

```
nums = [100, 2, 3, 40, 99]
words = ["three", "two", "one"]
```

Expression:	Value:
<code>nums[-1]</code>	
<code>nums[1:3]</code>	
<code>words[1]</code>	
<code>words[1][1]</code>	
<code>words[1][-2] * nums[2]</code>	

Expression:	Value:
<code>words.index("two")</code>	1
<code>nums[words.index("two")]</code>	
<code>nums[:1] + words[:1]</code>	
<code>", ".join(words)</code>	
<code>(",".join(words))[4:7]</code>	

## Problem 2: list in a list

```
rows = [ ["x", "y", "name"], [3, 4, "Alice"], [9, 1, "Bob"], [-3, 4, "Cindy"] ]
header = rows[0]
data = rows[1:]
X = 0
Y = 1
NAME = 2
```

Expression:	Value:
<code>len(rows)</code>	
<code>len(data)</code>	
<code>len(header)</code>	
<code>rows[1][-1]</code>	
<code>data[1][-1]</code>	

Expression:	Value:
<code>header.index("name")</code>	
<code>data[-1][header.index("name")]</code>	
<code>(data[0][X] + data[1][X] + data[2][X]) / 3</code>	
<code>(data[-1][X] ** 2 + data[-1][Y] ** 2) ** 0.5</code>	
<code>min(data[0][NAME], data[1][NAME], data[2][NAME])</code>	

### Problem 3: CSV (without a header), borrowed from 538

Food Science	24280	0.049188446	62000
CS	783292	0.049518657	78000
Microbiology	68885	0.050880749	60000
Math	432806	0.05293608	66000

```
rows = [ ["Food Science", "24000", "0.049188446", "62000"],  
         ["CS", "783000", "0.049518657", "78000"],  
         ["Microbiology", "70000", "0.050880749", "60000"],  
         ["Math", "433000", "0.05293608", "66000"] ]  
hd = ["major", "students", "unemployed", "salary"]
```

Expression:	Value:
rows[1][0]	
rows[3][hd.index("students")]	

Expression:	Value:
len(hd) == len(rows[1])	
rows[0][1] + rows[2][1]	

### Problem 4: CSV (with a header), borrowed from 538

city	state	2014_murders	2015_murders
Chicago	Illinois	411	478
Milwaukee	Wisconsin	90	145
Detroit	Michigan	298	295

```
rows = [ ["city", "state", "y14", "y15"],  
         ["Chicago", "Illinois", "411", "478"],  
         ["Milwaukee", "Wisconsin", "90", "145"],  
         ["Detroit", "Michigan", "298", "295"] ]  
hd = rows[0]  
rows = rows[1:]
```

Expression:	Value:
rows[0][hd.index("city")]	
rows[0][hd.index("y14")]	

Expression:	Value:
rows[2][hd.index("y14")] < rows[2][hd.index("y15")]	
", ".join(rows[-1][:2])	