## Translation Table

<table>
<thead>
<tr>
<th>Operation</th>
<th>Python</th>
<th>MATLAB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Math</strong></td>
<td>2 * 2 + 5/4(^2) + (3 + 3)</td>
<td>2 * 2 + 5/4(^2) + (3 + 3)</td>
</tr>
<tr>
<td>Assignment</td>
<td>x = 10</td>
<td>x = 10</td>
</tr>
<tr>
<td>List Creation</td>
<td>x = [1, 2, 3]</td>
<td>x = [1 2 3]</td>
</tr>
<tr>
<td>2D List Creation</td>
<td>x = [[1, 2, 3], [4, 5, 6]]</td>
<td>x = [1 2 3; 4 5 6]</td>
</tr>
<tr>
<td>List concatenation</td>
<td>x = x + [7, 8, 9]</td>
<td>x = [x, 7 8 9]</td>
</tr>
<tr>
<td>Size of a list</td>
<td>len(lst)</td>
<td>size(lst)</td>
</tr>
<tr>
<td>List indexing</td>
<td>lst[0]</td>
<td>lst(1)</td>
</tr>
</tbody>
</table>
| If Statement          | if stuff:
  things = 99
if a < b:
  things = 99
elif a < c:
  things = 88
else:
  things = 'Who Knows'
| if stuff
  things = 99
end
if a < b
  things = 99
elseif a < c
  things = 88
else
  things = 'Who Knows'
end |
| While Loop            | while something:
  x = x + 1
| while something
  x = x + 1
end |
| For Loop              | for i in range(10):
  x = x + i
| for i = 0:9
  x = x + i
end |
| Logical Operators     | and, or, not                                | & | | | |
| Relational Operators  | ==, !=, <, <=, >, >=                       | ==, ~=, <, <=, >, >=                       |
| Function Definition   | def f(x):
  return x**2                               | function a = f(x)
  a = x^2                                    |

### Some other things to keep in mind

- In MATLAB, everything is printed to the screen by default. To prevent this from happening, end your line in a semicolon. For example, x = 10 will print 10 but x = 10; will print nothing.
- MATLAB allows you to separate list elements by commas (like in python,) but this is unnecessary.
- In MATLAB \([1, 2, 3], [4, 5, 6]\) is valid code, however it doesn't do what you'd expect it to do coming from Python. In MATLAB the above line is equivalent to [1 2 3 4 5 6].
- MATLAB does not have a modulus operator, but it does have a mod function. So where you would do \(x \% y\) in Python, you would do \(\text{mod}(x, y)\) in MATLAB.
- The "return variable" in a MATLAB function can be called whatever you wish, but calling it a seems to be convention.
- In MATLAB, list indices start at 1 rather than 0.