Suppose I have a function I want to intergrate via trap rule - it is VERY simple:
Say its $y = x^2$ from 0 to 2
and for some reason I have unequl partition, so I have values at
x = 0, .5, 1.25,1.7,2
I generate the values for y at these point
$y = x^2 = 0,.25,1.etc$
I know this will part of a program and x and y can be indexed by say j that is 1, 2, 3, 4, 5 since their are 5 values for x and/or y. For example for x(1) = 0, x(2) = .5 ...
Then I start my calculation with first two points:
I can easily calculate one trapezod area, call it mytrap using the average height and the width
I do this over the entire range of indices, that is j, careful to keep track of my value for j in a matlab for loop.
I find by total area under the curve (summing mytraps) with a statement like
"area = area + mytrap" inside this loop.
If you use this statement for summing make sure to set area to zero each time you restart the loop to calculate another area sum!

YOU CAN CHECK YOUR WORK BY ACTUALLY DOING THIS FOR EQUAL PARTITION, UNEQUAL PARTITION AND COMPARE TO HAND CALCULATION (CALC TRAPEZOIDS YOURSELF) AND ANALYTIC CALCULATION FOR INTEGRAL FROM 0 TO 2 FOR $Y=X^2 \rightarrow \text{Area} = \frac{2^3}{3}$

Suppose I want to create embedded or nested for loops where inner loop is set by outer - assume x previously defined - program it up and run - does it match your expectations:

```
for i=1:imax
  for j = 1:i
     x(j)
  end
end
```

Program it up and run - does it match your expectations?