Name:
NetID:

You have 10 minutes to complete this quiz. You may not use a computer to answer the questions.

1. What is a vector?

   [**Ans**] A vector, or a one-dimensional array, is a collection of data organized in a single row or column that can be accessed using a single variable name.

2. What do the following expressions evaluate to? If you think the expression would generate an error, please state so.

   (a) `[1 3 8] .* [2 4 2]`

   [**Ans**] This carries out an element-by-element multiplication of the two vectors, resulting in the value `[2 12 16]`.

   (b) `('Ratm' == 'RATM')`

   [**Ans**] Comparing two vectors carries out an element-by-element comparison of their elements; thus the result here is `[1 0 0 0]` (recall that lower-case and upper-case characters are treated differently).

   (c) `0:5:16`

   [**Ans**] `[0 5 10 15]`

   (d) `('Bob Dylan' == 'Robert Zimmerman')`

   [**Ans**] This results in an error. To perform an element-by-element comparison of two vectors, they must have the same length.

3. You are given a vector `x`. Give an expression that uses the colon notation to pick out every element of `x` whose vector index is divisible by 7.

   [**Ans**] `x(7:7:end)`. A common mistake here was to give the answer `x(0:7:end)`. While 0 is certainly divisible by 7, note that array indexing in Matlab begins at 1 and therefore `x(0)` is illegal.

4. What are the values of the variables `v1`, `v2` and `v3` after we run the following fragment of code?

   ```
   x = [1 4 6; 2 9 7; 1 1 2];
   v1 = x(1, 3);
   v2 = x(:, 2);
   v3 = x([1 3], 2);
   ```

   [**Ans**] `v1 = 6` (pick out element in first row, third column)
   `v2 = [4 9 1]` (pick out all elements from second column)
   `v3 = [4 1]` (elements from first and third rows in second column)
   A few people got their rows and columns mixed up here. Remember that the indexing always goes (row, column).

5. What is the value of the variable `x` after we run the following fragment of code?

   ```
   x = [2 5 3];
   i = 1;
   while (i <= length(x))
       x(i) = x(i) + 5;
       i = i + 1;
   end
   ```

   [**Ans**] The loop adds 5 to each element in the vector `x`. Thus, the final value of `x` is `[7 10 8]`.