Name of the Student: _____

Q 1

Write a function that converts between degrees Celsius and degrees Fahrenheit. The function takes two arguments: temperature and unit.

Q 2

Write a function `divisible-by` which takes 2 integers and tells whether the first is divisible by the second. You may use the built-in `REM` which takes two arguments – first discover or guess what it does.

Q 3

Write a function `MAX` that gives the maximum of 3 numbers given as arguments.

Q 4

The built-in `MEMBER` checks whether an object appears in a list or not; discover how it works.

Q 5

Using `MEMBER`, define a function `MY-MEMBER` that behaves as follows:

```
* (my-member 'b '(a b c))

(B IS A MEMBER OF (A B C))
* (my-member 'z '(a b c))

(Z IS NOT A MEMBER OF (A B C))
*
```

Q 6

Another built-in that works on lists (and other sequences we will see) is `LENGTH`. Using `MEMBER` and `LENGTH`, write a function that gives the order of an item in a list. You can do this by combining `LENGTH` and `MEMBER` in a certain way. It should behave as follows – giving one plus the length of the list for non-members:

```
* (order 'a '(a b c))

1
* (order 'c '(a b c))

3
* (order 'z '(a b c))

4
* (order 'w '(a b c))

4
*
```

Q 7

Modify your solution to Q 6, so that it returns `NIL` for non-members.

Q 8

A palindrome is a sequence that reads the same from left to right and right to left. Write a function that checks whether its list argument is a palindrome. You can use the built-in `REVERSE`.

Q 9

Fill in the places where a value will be returned and printed:

```
* (defvar k)

* (defvar s)

* (setf k 8)

* (setf s 'k)

* (setf k 3)

* s

* (setf s k)

* (setf k 7)

* s
```

Q 10

Study the following function, what is it for?

```
(defun dummy (x y)
  (if (endp y)
    nil
    (if (equal x (car y))
      y
      (dummy x (cdr y))
      )
    )
  )
```