CS200: Programming Languages  
Homework 7: Haskell functions and syntax

Required Problems

1. Write a function `blastoff :: Int -> String` that takes an integer as input and returns 
a countdown to a rocket launch (see examples below). If the number is 0 or less, it should
return the string “Negative value, so no blastoff”. For example: For example:

   *Main> blastoff 4
   "4, 3, 2, 1, Blastoff!"
   *Main> blastoff 0
   "Blastoff!"
   *Main> blastoff 10
   "10, 9, 8, 7, 6, 5, 4, 3, 2, 1, Blastoff!"
   *Main> blastoff (-2)
   "Negative value, so no blastoff"

   (Hint: if you haven’t read it yet, note that the function show converts a number to a
   string.)

2. Write a function `hyphenate :: [String] -> String` that takes a list of strings and returns
a single string that contains the given strings in the order given, separated by “- ”. For
example:

   *Main> hyphenate []
   ""
   *Main> hyphenate ["a", "b"]
   "a-b"
   *Main> hyphenate ["Monday", "Tuesday", "Wednesday", "Thursday"]
   "Monday-Tuesday-Wednesday-Thursday"

3. Write a function `multiplyMe :: Int -> [a] -> [a]` which takes as input an element of
some type and a list of that same type, and returns a new list where each element is repeated
a times. For example:

   *Main> multiplyMe 4 []
   []
   *Main> multiplyMe 1 [’a’, ’b’, ’c’]
   "abc"
   *Main> multiplyMe 2 [3,1,7,5,9]
   [3,3,1,1,7,7,5,5,9,9]
   *Main> multiplyMe 4 [’a’, ’b’, ’c’]
   "aaaaabbbcccc"
4. Write a function `repeats :: Eq a => [a] -> Bool` which returns True if its argument contains duplicate elements. For example:

*Main> repeats [1,2,3,4,5]
False
*Main> repeats [1,2,3,2]
True