In-Class Worksheet

Discrete Math & Functional Programming— CSCI 054— Spring 2024

Instructor: Osborn

Write the function `oddList'` using a list comprehension.

```
oddList' n =
  if n <= 0
  then []
  else if (n `mod` 2) == 1
       then oddList' (n-1) ++ [n]
       else oddList' (n-1)
```

What are the types of these functions?

1. `addTriplet (x, y, z) = x + y + z`

2. `addTriplet' x y z = x + y + z`

3. `weird a b = [ if x*y > 3 then [a] else [b] | x <- [1..3], y <- [1..3]]`

4. a function `pythagoras` that takes a tuple of integers (a, b, c) and returns True if and only if $a^2 + b^2 = c^2$.

```
maxInt :: [Integer] -> Integer

maxInt [x] = x

maxInt (x:xs) = max x (maxInt xs)
```

Use pattern matching to write a function that returns the last element of a list (i.e. the tail function, but without using tail)

Use pattern matching to write a function that returns the second-to-last element of a list