COMP 333 Spring 2021

Generics, Parametric Polymorphism, and Higher-Order Functions in Swift

1.) Define a function that takes a value of some generic type ${\tt A},$ and returns the same value.

2.) Define a function that takes values of generic types ${\tt A}$ and ${\tt B},$ and returns a pair of these values.

3.) Write the body of the following Swift function. As a hint, only one possible body (which typechecks) exists.

 4.) Consider the following enum definition, defining the structure of a linked list:

```
indirect enum List<A> {
   case cons(A, List<A>)
   case empty
}
```

4.a.) Define the map function, which has the following signature:

```
func map<A, B>(list: List<A>, f: (A) \rightarrow B) \rightarrow List<B> {
```

4.b.) Define the foldLeft function, which has the following signature: