COMP 333 Fall 2023

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

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

```
func myFunc<A, B, C, D>(a: A, b: B, f1: (A) -> C, f2: (A, C) -> D) -> (C, D) {
```

```
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: