

## 1

In class we discussed the following code.

```
plus (x,y) = x + y
plusc x y = x + y
curry f x y = f(x,y)
uncurry f (x,y) = f x y
(f . g) x = f (g x)
id x = x
```

Recall the extensionality rule for proving functions  $f, g : A \rightarrow B$  are equal.

$$f = g \stackrel{\text{def}}{=} \forall x : A. fx = gx$$

Following the proofs given in class, prove the following using extensionality.

- i.)  $\text{curry plus} = \text{plusc}$
- ii.)  $\text{curry (uncurry plusc)} = \text{plusc}$
- iii.)  $\text{uncurry (curry plus)} = \text{plus}$
- iv.)  $(f . \text{id}) = f$
- v.)  $(\text{id} . f) = f$