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cs3110, Fall 2014
PS1, Written

1.

- (a) `int = 42`
- (b) `int = 42`
- (c) n/a, list should be of uniform type but a float was given when an `int` is being expected, therefore not well-typed
- (d) `int list = [2;4;6;8;10]`
- (e) `(string * string) list = [("zar","doz")]`
- (f) `unit = ()`
- (g) `int option = Some 3110`
- (h) `int = 1764`
- (i) n/a, function "f" is declared to have an inconsistent number of arguments, having 1 in `(f x = x + 1)` but 2 in `(f f 10)`
- (j) `int = 12`

2.

- (a) `42`
- (b) `["Charlie"; "Lily"]`
- (c) `let f lst = match lst with [] -> 0.1 | h::t -> h +. h`
- (d) `let f x = match x with None -> 0 | Some y -> y`
- (e) `let f x y = match x with [] -> [1] | h::t -> (h+h)::y`
- (f) `let f x = (x[1;2])@[3;4]`
- (g) `let f x = (fun a b -> match a with [] -> a@b | h::t -> (h+h)::b) x`
- (h) `let f x = match x with (a,b) -> match b with [] -> [(a+a, 'a')] | h::t -> [(a+a, h)]`
- (i) `{hour=10; minute=10; am_pm="am"}`
- (j) `let f x = x.hour`

3.

```
let rec merge ((a:int list), (b:int list)) =  
  match a, b with  
  | [], _ -> b  
  | _, [] -> a  
  | h1::t1, h2::t2 -> if h1 < h2 then h1::merge (t1,b) else h2::merge (a,t2)
```

7.

The problem set was clear for the most part and Piazza helped any confusion if there were any. As for the work division in this problem set, each partner definitely had a chance to try each exercise, whether together or individually. This way, the best of each answer was discussed and included on the final submission.