# Quiz 1 Solutions

COMP 302 Winter 2020

The correct answer is shown in **bold**.

1. Consider the following code fragment

```
let x = 1 in

  let f = (let x = 2 in fun n -> n + x) in

    let x = 3 in

      (f x);;
```

   The following questions pertain to this code fragment:

   (a) What is $n$ bound to when $n + x$ is being evaluated?
   (a) **3**, (b) 0, (c) 4, (d) 2, (e) 1.

   (b) What is the maximum number of different bindings for $x$ that are active at the same time?
   (a) 4, (b) 5, (c) 2, (d) 1, (e) **3**.

   (c) What is the value produced when evaluation is complete?
   (a) 1729, (b) 8, (c) **5**, (d) 7, (e) 9.

2. Consider the following code fragment:

```
let x = 1 in

  let f = fun n -> (let y = x in n + y) in

    let z = (f x) in (f z);;
```

   The following questions pertain to this code fragment:

   (a) The function $f$ is called twice. How many times is the binding for $y$ created?
   (a) **2**, (b) 0, (c) 3, (d) 1, (e) 1729.

   (b) What is $n$ bound to after the call $(f\ \ z)$?
   (a) 1, (b) **2**, (c) 1729, (d) 3, (e) 0.

   (c) What is the value of this expression when it finishes?
   (a) 4, (b) 2, (c) 1, (d) **3**, (e) 5.