

# CSPB 3155 - Reckwerdt - Principles of Programming Languages

[Dashboard](#) / [My courses](#) / [2244:CSPB 3155](#) / [Week 5: Lettuce, Scoping, and Closures](#) / [Project 1 Quiz](#)

**Started on** Monday, 17 June 2024, 11:24 PM

**State** Finished

**Completed on** Monday, 17 June 2024, 11:26 PM

**Time taken** 2 mins 3 secs

**Marks** 9.00/9.00

**Grade** 10.00 out of 10.00 (100%)

## Question 1

Correct

Mark 1.00 out of 1.00

Consider the sequence of instructions

```
[PushI(3.0), StoreI("x"), PushI(4.0), MultI, AddI]
```

under the initial environment {"x" -> 5.0, "y" -> 4.5 }

What is the result of executing this sequence in terms of the final stack and the final environment?

- ☒ a. The final stack has a single value 23.0 and final environment is same as initial environment
- ☐ b. The final stack has [4.0, 5.0, 3.0] and the final environment is unchanged
- ☐ c. The sequence of instructions leads to an error due to popping from an empty stack
- ☐ d. The sequence of instructions leads to an error since it tries to look up "x" from an environment that does not have a binding for "x"

Your answer is correct.

Correct

Marks for this submission: 1.00/1.00.

Question **2**

Correct

Mark 2.00 out of 2.00

Which of the following sequences of instructions will execute without error starting from an initially empty environment and empty stack.

Select one or more:

☐ a.

[PushI(3.0), PushI(4.0), AddI, Multi]

☐ b.☐ [PushI(4.0), StoreI("x"), AddI]



c.

`[PushI(5.0), PushI(5.0), PushI(5.0), LoadI("x"), AddI, StoreI("x"), Multi]`

d.

`[PushI(3.2), LoadI("x"), PushI(4.2), LoadI("x"), PushI(5.2), LoadI("x"), StoreI("x"), StoreI("x"), Multi, StoreI("x"), Multi, StoreI("x")]`

e.

`[PushI(3.0), PushI(4.0), LoadI("x"), LoadI("y"), StoreI("y"), StoreI("x"), Multi, StoreI("y"), AddI]`

Your answer is correct.

Correct

Marks for this submission: 2.00/2.00.

### Question 3

Correct

Mark 3.00 out of 3.00

What is the result of running the instructions

```
[PushI(3.0), PushI(4.0), LoadI("x"), LoadI("y"), StoreI("y"), StoreI("x"), MultiI, StoreI("y"), AddI, LoadI("z")]
```

starting with an empty stack and environment? Choose all correct answers from the list below.

Select one or more:



a.

The final environment is {"x" -> 3.0, "y" -> 4.0, "z" -> 15.0}



b.

The final stack is the empty stack



c.



The final environment is {"x" -> 4.0, "y" -> 3.0, "z" -> 15.0}



d.

The final stack has the single value [15.0] in it.

Your answer is correct.

Correct

Marks for this submission: 3.00/3.00.

Question **4**

Correct

Mark 2.00 out of 2.00

Consider the lettuce program

```
let x = 10 in  
  5 - x
```

What sequence of instructions will this translate into?

- ☐ a. [PushI(10.0), PushI(5.0), MinusI]
- ☐ b. [PushI(5.0), PushI(10.0), LoadI("x"), StoreI("x"), MinusI]
- ☒ c. [PushI(10.0), LoadI("x"), PushI(5.0), StoreI("x"), MinusI]
- ☐ d. [PushI(10.0), LoadI("x"), StoreI("x"), PushI(5.0), MinusI]

Your answer is correct.

Correct

Marks for this submission: 2.00/2.00.

Question **5**

Correct

Mark 1.00 out of 1.00

Consider the set of instructions

[PushI(2.0), PushI(3.0), AddI, PushI(4.0), SubI]

Starting from an empty stack, what does this sequence of instructions result in?

- ☐ a. The stack with [4.0, 3.0, 2.0]
- ☒ b. A stack with a single element 1.0
- ☐ c. Error, executing these instructions will try and pop an empty stack.
- ☐ d. A stack with a single element -1.0

Your answer is correct.

Correct

Marks for this submission: 1.00/1.00.