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Lab 1 Write-up

Question 2

A. The use of pi at line 4 is bound at which line? The use of pi at line 7 is bound at which line?
    a. Pi at line 4 is bound to the pi at line 3 (val pi)
    b. Pi at line 7 is bound to pi at line 1 (because pi at line 3 is within the scope of the pi being used on line 4, whereas pi at line 1 is in the outer scope used by line 7)
B. The use of x at line 3 is bound at which line? The use of x at line 6 is bound at which line? The use of x at line 10 is bound at which line? The use of x at line 13 is bound at which line?
    a. X at line 3 is bound to line 2 (because it is within the scope and is the parameter being used)
    b. X at line 6 is bound to line 5 (because it is within that scope of the case at line 5)
    c. X at line 10 is bound to line 5 (because it also is within the scope from the case at line 5)
    d. X at line 13 is bound to line 1 (because it is outside all other scopes therefore is bound to the line of the same "level")

Question 3

A. Is the body of g well-typed?
    a. Yes, the body of g is well typed, even without the return value. This is because regardless of input, the function will return some tuple value with a nested tuple value of two integers as its contained value, with another integer as the second contained value. Ex. ((Int, Int), Int).
B. a: Int because
        1: Int
    b: (Int, Int) because
        x: Int
        3: Int
    (b,1): ((Int, Int), Int) because
        b: (Int, Int)
        1: Int
    (b, a + 2): ((Int, Int), Int) because
        b: (Int, Int)
        a: Int
        2: Int