# Feedback — Week 2 Quiz

Help

You submitted this quiz on **Sun 14 Dec 2014 8:27 AM PST**. You got a score of **9.00** out of **10.00**. You can attempt again, if you'd like.

## Question 1

Suppose I define the following function in R

```
cube <- function(x, n) {
        x^3
}
```

What is the result of running

```
cube(3)
```

in R after defining this function?

| Your Answer | | Score | Explanation |
|---|---|---|---|
| ○ A warning is given with no value returned. | | | |
| ○ The users is prompted to specify the value of 'n'. | | | |
| ○ An error is returned because 'n' is not specified in the call to 'cube' | | | |
| ◉ The number 27 is returned | ✔ | 1.00 | Because 'n' is not evaluated, it is not needed even though it is a formal argument. |
| Total | | 1.00 / 1.00 | |

# Question 2

The following code will produce a warning in R.

```
x <- 1:10
if(x > 5) {
        x <- 0
}
```

Why?

| Your Answer | | Score | Explanation |
|---|---|---|---|
| (•) 'x' is a vector of length 10 and 'if' can only test a single logical statement. | ✔ | 1.00 | |
| ( ) The syntax of this R expression is incorrect. | | | |
| ( ) There are no elements in 'x' that are greater than 5 | | | |
| ( ) You cannot set 'x' to be 0 because 'x' is a vector and 0 is a scalar. | | | |
| ( ) The expression uses curly braces. | | | |
| Total | | 1.00 / 1.00 | |

# Question 3

Consider the following function

```
f <- function(x) {
        g <- function(y) {
```

```
                y + z
        }
        z <- 4
        x + g(x)
}
```

If I then run in R

```
z <- 10
f(3)
```

What value is returned?

| Your Answer | | Score | Explanation |
|---|---|---|---|
| 4 | | | |
| 10 | ✔ | 1.00 | |
| 7 | | | |
| 16 | | | |
| Total | | 1.00 / 1.00 | |

# Question 4

Consider the following expression:

```
x <- 5
y <- if(x < 3) {
        NA
} else {
        10
}
```

What is the value of 'y' after evaluating this expression?

| Your Answer | | Score | Explanation |
|---|---|---|---|
| (•) 10 | ✔ | 1.00 | |
| ( ) 3 | | | |
| ( ) NA | | | |
| ( ) 5 | | | |
| Total | | 1.00 / 1.00 | |

# Question 5

Consider the following R function

```
h <- function(x, y = NULL, d = 3L) {
        z <- cbind(x, d)
        if(!is.null(y))
                z <- z + y
        else
                z <- z + f
        g <- x + y / z
        if(d == 3L)
                return(g)
        g <- g + 10
        g
}
```

Which symbol in the above function is a free variable?

| Your Answer | | Score | Explanation |
|---|---|---|---|
| (•) f | ✔ | 1.00 | |
| ( ) z | | | |
| ( ) d | | | |

| | | | |
|---|---|---|---|
| L | | | |
| g | | | |
| Total | 1.00 / 1.00 | | |

## Question 6

What is an environment in R?

| Your Answer | | Score | Explanation |
|---|---|---|---|
| a list whose elements are all functions | | | |
| an R package that only contains data | | | |
| a special type of function | | | |
| a collection of symbol/value pairs | ✔ | 1.00 | |
| Total | | 1.00 / 1.00 | |

## Question 7

The R language uses what type of scoping rule for resolving free variables?

| Your Answer | | Score | Explanation |
|---|---|---|---|
| lexical scoping | ✔ | 1.00 | |
| compilation scoping | | | |
| global scoping | | | |

| | | | |
|---|---|---|---|
| ○ dynamic scoping | | | |
| Total | 1.00 / 1.00 | | |

# Question 8

How are free variables in R functions resolved?

| Your Answer | | Score | Explanation |
|---|---|---|---|
| ○ The values of free variables are searched for in the environment in which the function was called | | | |
| ◉ The values of free variables are searched for in the environment in which the function was defined | ✔ | 1.00 | |
| ○ The values of free variables are searched for in the global environment | | | |
| ○ The values of free variables are searched for in the working directory | | | |
| Total | | 1.00 / 1.00 | |

# Question 9

What is one of the consequences of the scoping rules used in R?

| Your Answer | Score | Explanation |
|---|---|---|
| ○ Functions cannot be nested | | |
| ○ All objects can be stored on the disk | | |

| | | |
|---|---|---|
| R objects cannot be larger than 100 MB | | |
| All objects must be stored in memory | ✔ | 1.00 |
| Total | | 1.00 / 1.00 |

## Question 10

In R, what is the parent frame?

| Your Answer | | Score | Explanation |
|---|---|---|---|
| It is the environment in which a function was defined | ✖ | 0.00 | |
| It is the package search list | | | |
| It is the environment in which a function was called | | | |
| It is always the global environment | | | |
| Total | | 0.00 / 1.00 | |