

Feedback — Week 2 Quiz

[Help](#)

You submitted this quiz on **Fri 11 Jul 2014 11:56 AM CEST**. You got a score of **10.00** out of **10.00**.

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 |
|---|-------------|---|
| <input type="radio"/> A warning is given with no value returned. | | |
| <input checked="" type="radio"/> The number 27 is returned | 1.00 | Because 'n' is not evaluated, it is not needed even though it is a formal argument. |
| <input type="radio"/> An error is returned because 'n' is not specified in the call to 'cube' | | |
| <input type="radio"/> The users is prompted to specify the value of 'n'. | | |
| 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 |
|--|----------------|-------------|
| <input type="radio"/> You cannot set 'x' to be 0 because 'x' is a vector and 0 is a scalar. | | |
| <input checked="" type="radio"/> 'x' is a vector of length 10 and 'if' can only test a single logical statement. | ✓ 1.00 | |
| <input type="radio"/> There are no elements in 'x' that are greater than 5 | | |
| <input type="radio"/> The expression uses curly braces. | | |
| <input type="radio"/> The syntax of this R expression is incorrect. | | |
| 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 |
|-------------------------------------|-------------|-------------|
| <input type="radio"/> 7 | | |
| <input type="radio"/> 16 | | |
| <input type="radio"/> 4 | | |
| <input checked="" type="radio"/> 10 | ✓ 1.00 | |
| 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 |
|-------------------------------------|-------------|-------------|
| <input checked="" type="radio"/> 10 | ✓ 1.00 | |
| <input type="radio"/> NA | | |
| <input type="radio"/> 5 | | |
| <input type="radio"/> 3 | | |
| 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 |
|------------------------------------|-------------|-------------|
| <input checked="" type="radio"/> f | 1.00 | |
| <input type="radio"/> z | | |
| <input type="radio"/> d | | |
| <input type="radio"/> L | | |
| <input type="radio"/> g | | |
| Total | 1.00 / 1.00 | |

Question 6

What is an environment in R?

| Your Answer | Score | Explanation |
|--|-------|-------------|
| <input type="radio"/> a special type of function | | |

- | | | |
|---|---|------|
| <input type="radio"/> an R package that only contains data | | |
| <input type="radio"/> a list whose elements are all functions | | |
| <input checked="" type="radio"/> 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 |
|--|--------|-------------|
| <input type="radio"/> global scoping | | |
| <input checked="" type="radio"/> lexical scoping | ✓ 1.00 | |
| <input type="radio"/> dynamic scoping | | |
| <input type="radio"/> compilation scoping | | |

| | |
|-------|-------------|
| Total | 1.00 / 1.00 |
|-------|-------------|

Question 8

How are free variables in R functions resolved?

- | Your Answer | Score | Explanation |
|---|--------|-------------|
| <input type="radio"/> The values of free variables are searched for in the working directory | | |
| <input checked="" type="radio"/> The values of free variables are searched for in the environment in which the function was defined | ✓ 1.00 | |
| <input type="radio"/> 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 global environment

| | |
|-------|-------------|
| Total | 1.00 / 1.00 |
|-------|-------------|

Question 9

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

| Your Answer | Score | Explanation |
|-------------|-------|-------------|
|-------------|-------|-------------|

☐ All objects can be stored on the disk

☐ Functions cannot be nested

☒ All objects must be stored in memory ✓ 1.00

☐ R objects cannot be larger than 100 MB

| | |
|-------|-------------|
| 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 called ✓ 1.00

☐ It is the environment in which a function was defined

☐ It is always the global environment

☐ It is the package search list

| | |
|-------|-------------|
| Total | 1.00 / 1.00 |
|-------|-------------|

