

Feedback — Week 2 Quiz

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You submitted this quiz on **Mon 7 Oct 2013 8:54 PM PDT (UTC -0700)**. 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"/> The users is prompted to specify the value of 'n'.		
<input type="radio"/> A warning is given with no value returned.		
<input type="radio"/> An error is returned because 'n' is not specified in the call to 'cube'		
<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.
Total	1.00 / 1.00	

Question 2

Suppose I define the following function in R

```
pow <- function(x = 4, n = 3) {
  x^n
}
```

What is the result of running

```
pow()
```

in R after defining this function?

Your Answer	Score	Explanation
<input type="radio"/> A warning is given and the function returns 64.		
<input type="radio"/> An error is given the function does not finish execution.		
<input type="radio"/> The number 81 is returned.		
<input checked="" type="radio"/> The number 64 is returned.	✓ 1.00	R will use the default values of 'x' and 'n' if they are not specified by the user in the call to 'pow'.
Total	1.00 / 1.00	

Question 3

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"/> The expression uses curly braces.		
<input type="radio"/> The syntax of this R expression is incorrect.		
<input type="radio"/> There are no elements in 'x' that are greater than 5		
<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	
Total	1.00 / 1.00	

Question 4

Take a look at the 'iris' dataset that comes with R. The data can be loaded with the code:

```
library(datasets)
data(iris)
```

A description of the dataset can be found by running

```
?iris
```

There will be an object called 'iris' in your workspace. In this dataset, what is the mean of 'Sepal.Length' for the species *virginica*? (Please only enter the numeric result and nothing else.)

You entered:

Your Answer	Score	Explanation
6.588	✓ 1.00	To get the answer here, you can use 'tapply' to calculate the mean of 'Sepal.Length' within each species.

Total	1.00 /
	1.00

Question 5

Continuing with the 'iris' dataset from Question 4, what R code returns a vector of the means of the variables 'Sepal.Length', 'Sepal.Width', 'Petal.Length', and 'Petal.Width'?

Your Answer	Score	Explanation
<input type="radio"/> <code>apply(iris, 1, mean)</code>		
<input type="radio"/> <code>colMeans(iris)</code>		
<input checked="" type="radio"/> <code>apply(iris[, 1:4], 2, mean)</code>	✓ 1.00	
<input type="radio"/> <code>apply(iris, 2, mean)</code>		
<input type="radio"/> <code>rowMeans(iris[, 1:4])</code>		
<input type="radio"/> <code>apply(iris[, 1:4], 1, mean)</code>		
Total	1.00 / 1.00	

Question 6

Load the 'mtcars' dataset in R with the following code

```
library(datasets)
data(mtcars)
```

There will be an object names 'mtcars' in your workspace. You can find some information about the dataset by running

```
?mtcars
```

How can one calculate the average miles per gallon (mpg) by number of cylinders in the car

(cyl)?

Your Answer	Score	Explanation
<input checked="" type="radio"/> <code>sapply(split(mtcars\$mpg, mtcars\$cyl), mean)</code>	✓ 1.00	
<input type="radio"/> <code>sapply(mtcars, cyl, mean)</code>		
<input type="radio"/> <code>mean(mtcars\$mpg, mtcars\$cyl)</code>		
<input type="radio"/> <code>split(mtcars, mtcars\$cyl)</code>		
Total	1.00 / 1.00	

Question 7

Continuing with the 'mtcars' dataset from Question 6, what is the absolute difference between the average horsepower of 4-cylinder cars and the average horsepower of 8-cylinder cars?

You entered:

126.5779

Your Answer	Score	Explanation
126.5779	✓ 1.00	
Total	1.00 / 1.00	

Question 8

What is the difference between the 'sapply' function and the 'lapply' function?

Your Answer	Score	Explanation
<input type="radio"/> 'sapply' always returns a 2-dimensional matrix while 'lapply' returns a list.		

☐ 'lapply' always returns an atomic vector and 'sapply' always returns a list.

☐ There is no difference; 'sapply' and 'lapply' are two names for the same function

☒ 'lapply' always returns a list while 'sapply' attempts to simplify the result. ✓ 1.00

Total	1.00 / 1.00
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Question 9

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 by 'f'?

Your Answer	Score	Explanation
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☐ 4

☐ 7

☐ 16

☒ 10 ✓ 1.00

Total	1.00 / 1.00
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Question 10

If you run

```
debug(ls)
```

what happens when you next call the 'ls' function?

Your Answer	Score	Explanation
<input type="radio"/> You will be prompted to specify at which line of the function you would like to suspend execution and enter the browser.		
<input type="radio"/> The 'ls' function will return an error.		
<input type="radio"/> The 'ls' function will execute as usual.		
<input type="radio"/> Execution of the 'ls' function will suspend at the 4th line of the function and you will be in the browser.		
<input checked="" type="radio"/> Execution of 'ls' will suspend at the beginning of the function and you will be in the browser.	✓ 1.00	
Total	1.00 / 1.00	