



Week 4 Quiz



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(90%)

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Quiz passed!



1 / 1
points

1.

What is produced at the end of this snippet of R code?

```
set.seed(1)
rpois(5, 2)
```



A vector with the numbers 1, 1, 2, 4, 1



Correct Response

Because the ``set.seed()'` function is used, ``rpois()'` will always output the same vector in this code.



It is impossible to tell because the result is random



A vector with the numbers 3.3, 2.5, 0.5, 1.1, 1.7



A vector with the numbers 1, 4, 1, 1, 5



1 / 1
points

2.

What R function can be used to generate standard Normal random variables?



`dnorm`



`rnorm`



Correct Response

Functions beginning with the ``r'` prefix are used to simulate random variates.



`pnorm`



`qnorm`



0 / 1
points

3.

When simulating data, why is using the `set.seed()` function important? Select all that apply.



It ensures that the sequence of random numbers is truly random.



Incorrect Response



It can be used to generate non-uniform random numbers.



Incorrect Response



It ensures that the sequence of random numbers starts in a specific place and is therefore reproducible.



Correct Response



It ensures that the random numbers generated are within specified boundaries.



Correct Response



1 / 1
points

4.

Which function can be used to evaluate the inverse cumulative distribution function for the Poisson distribution?



`ppois`



`qpois`



Correct Response

Probability distribution functions beginning with the ``q'` prefix are used to evaluate the quantile (inverse cumulative distribution) function.



`rpois`



`dpois`



1 / 1
points

5.

What does the following code do?

```
set.seed(10)
x <- rep(0:1, each = 5)
e <- rnorm(10, 0, 20)
y <- 0.5 + 2 * x + e
```



Generate data from a Normal linear model



Correct Response



Generate data from a Poisson generalized linear model



Generate uniformly distributed random data



Generate random exponentially distributed data



1 / 1
points

6.

What R function can be used to generate Binomial random variables?



dbinom



rbinom



Correct Response



qbinom



pbinom



1 / 1
points

7.

What aspect of the R runtime does the profiler keep track of when an R expression is evaluated?

- ☐ the package search list
- ☒ the function call stack



Correct Response

- ☐ the working directory
- ☐ the global environment



1 / 1
points

8.

Consider the following R code

```
library(datasets)
Rprof()
fit <- lm(y ~ x1 + x2)
Rprof(NULL)
```

(Assume that y, x1, and x2 are present in the workspace.) Without running the code, what percentage of the run time is spent in the 'lm' function, based on the 'by.total' method of normalization shown in 'summaryRprof()'?

- ☒ 100%



Correct Response

When using 'by.total' normalization, the top-level function (in this case, 'lm()') always takes 100% of the time.

- ☐ 23%
- ☐ 50%
- ☐ It is not possible to tell



1 / 1
points

9.

When using 'system.time()', what is the user time?

- ☐ It is a measure of network latency
- ☐ It is the "wall-clock" time it takes to evaluate an expression
- ☐ It is the time spent by the CPU waiting for other tasks to finish
- ☒ It is the time spent by the CPU evaluating an expression

Correct Response



1 / 1
points

10.

If a computer has more than one available processor and R is able to take advantage of that, then which of the following is true when using 'system.time()'?

- ☐ elapsed time is 0
- ☐ user time is 0
- ☐ user time is always smaller than elapsed time
- ☒ elapsed time may be smaller than user time

Correct Response

