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## DATA211

## Homework 01

1. What is R primarily used for?  
R is primarily used for statistical computing and data visualizations.
2. True or False: R is a proprietary software.  
False.
3. How would you assign the number 5 to a variable named 'x' in R?  
You could use the assignment operator as thus:  $x \leftarrow 5$
4. Which of the following is not a correct way to assign a value to a variable in R?
  - a.  $y \leftarrow 3$
  - b.  $y = 3$
  - c.  $3 \rightarrow y$
  - d.  $y:3$
5. Assign the character string "Hello, World!" to a variable named 'greeting'. Write the R code.  
 $\text{greeting} \leftarrow \text{"Hello, World!"}$
6. Perform the addition of 7 and 8 in R.  
 $7 + 8$
7. If  $a \leftarrow 10$  and  $b \leftarrow 5$ , what is the result of  $a/b$  in R?  
 $\text{result} \leftarrow a/b$  # the value of 2 is stored into the variable "result".
8. Write the R expression to calculate the remainder when 15 is divided by 4.  
 $\text{remainder} \leftarrow 15 \% 4$
9. If  $x \leftarrow 3$  and  $y \leftarrow 4$ , what would be the result of  $x*y$ ?  
8
10. How do you write a single-line comment in R?  
# Use the hashtag/pound symbol.
11. True or False: R supports multi-line comments using '/' and '/\*'.  
False.
12. What is the purpose of writing comments in a program?  
You can make code more understandable and readable through comments.
13. Write an R code that assigns the value 10 to a variable 'z' and includes a comment explaining what the code does.  
# Use assignment operator to assign the value of 10 to variable "z".  
 $z \leftarrow 10$
14. If you want to raise 3 to the power of 4 and then assign the result to a variable called 'result', how would you do this in R?  
# Use the caret operator (^).  
 $\text{result} \leftarrow 3^4$
15. Explain in one sentence what R does when it encounters a line starting with the '#' symbol.  
The R interpreter within R Studio ignores everything to the right of "#", on that row.
16. Write the R code to calculate the square root of 16 and assign it to a variable named 'sqrt\_value'.  
 $\text{sqrt\_value} \leftarrow \text{sqrt}(16)$
17. If 'cost' is 50 and 'tax' is 0.1, how would you calculate the total price after tax in R?  
 $\text{total\_price} \leftarrow \text{cost} * (1 + \text{tax})$
18. In R, what symbol is primarily used for assignment?  
The assignment operator, " $\leftarrow$ ", is primarily used for assignment.
19. Which of the following operations will return a value of 1 in R?

a. $8 \% 3$	2
b. $8 \% \% 3$	2
c. $3 + 8$	11
d. $8 / 3$	2.66

} None of these return a value of 1.
20. Why is it useful to add comments to your R code?  
It is convenient to document the functionality of a program, through comments. Commenting provides clarity and understanding of the behaviour of the program. Therefore, comments are useful.