CHAPMAN University

Department of Computational and Data Sciences
CS501 Introductory Computation for Scientists
Fall 2019
Homework#11

Date Given: Nov 18, 2019 Due Date: Dec 3, 2019

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Download Julia software from www.julialang.org and install it on your computer.
Install "IJulia" package and run Julia language using Jupyter IDE.

Solve the following problems using Julia language. These problems are identical to the Homework#9 problems where we solved them using R language. Now instead of using R, we will use Julia language. Make sure that answer computed by Julia code matches with the given answer.

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1. Evaluate the following expressions in Julia. Make sure that the answers generated by your Julia code matches with the given answers.

   $x = 5 + 8i$

   $y = -6 + 7i$

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   a) $u = x + y$
   b) $v = xy$
   c) $w = x / y$
   d) $z = e^x$
   e) $r = \sqrt{y}$
   f) $s = xy^2$

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Answers:
 [a] -1+15i
 [b] -86-13i
 [c] 0.3058824-0.9764706i
 [d] -21.5941+146.8338i
 [e] 1.268768+2.758582i
 [f] 607-524i
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2. Use Julia to compute the following expressions. Make sure that the answers generated by your Julia code matches with the given answers.

   a) $(3+6i)(-7-9i)$
   b) $\dfrac{5+4i}{5-4i}$
   c) $\dfrac{3}{2i}$

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Answers:
 [a] 33-69i
 [b] 0.2195122+0.9756098i
 [c] 0-1.5i
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3. Use Julia to calculate the following expressions. Make sure that the answers generated by your Julia code matches with the given answers.

   a) $e^{(-2.1)^3} + 3.47\log(14) + \sqrt[4]{287}$

   b) $(3.4)^7\log(14) + \sqrt[4]{287}$

   c) $\cos^2\left(\frac{4.12\pi}{6}\right)$

   d) $\cos\left(\frac{4.12\pi}{6}\right)^2$

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Answers:
 [a] 8.093113
 [b] 6023.964
 [c] 0.3062422
 [d] -0.05872703
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