ALN - Aula Prática 3

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Matrícula: 241708065, Curso: Ciência de Dados

Questão 1

Matrizes utilizadas nas questões 1 a 4:

"A"		"A"					
			16.9	5.25	13.27	22.56	10.08
1.	1.	1.	8.06	23.25	3.21	21.08	13.28
1	0	-	20.65	10.43	19.83	11.52	5.4
Ι.	0.	1.	20.65 21.78	6.29	17.63	17.7	20.36
0.	1.	1.	23.74	10.5	1.78	10.18	4.68

Resultados de qr_GS:

```
"OT * O"
                                                   "OT * O"
                                                              -1.179D-16 1.610D-16 -1.179D-17 -1.736D-16
               1.110D-16
                                3.886D-16
                                                  -1.179D-16 1. 2.375D-16 -2.032D-16 3.321D-16
1.610D-16 2.375D-16 1. -5.936D-16 1.993D-16
-1.179D-17 -2.032D-16 -5.936D-16 1. 6.214D-16
 1.110D-16 1.
                                -5.421D-16
 3.886D-16 -5.421D-16 1.
                                                  -1.736D-16 3.321D-16 1.993D-16 6.214D-16 1.
"Q * R"
                                                   "Q * R"
                                                   16.9 5.25 13.27 22.56 10.08
8.06 23.25 3.21 21.08 13.28
      1.
               1.
                                                   8.06 23.25 3.21 21.08 13.28
20.65 10.43 19.83 11.52 5.4
 1.
        0.
               1.
 0.
       1.
               1.
                                                    21.78 6.29 17.63 17.7
                                                   23.74 10.5 1.78 10.18 4.68
"Erro: "
                                                   "Erro: "
                                                   3.775D-15
```

Questão 2

Resultados de qr_GSM:

```
"QT * Q"
"OT * O"
                                       1. -1.179D-16 1.610D-16 1.829D-17 -1.904D-16 3.886D-16 -1.179D-16 1. 2.928D-17 -1.043D-16 -2.264D-16 -2.849D-16 1.610D-16 2.928D-17 1. -1.157D-17 1.917D-16
                   1.110D-16 3.886D-16
 1.110D-16 1.
                                                              1.829D-17 -1.043D-16 -1.157D-17 1. 7.571D-17 -1.904D-16 -2.264D-16 1.917D-16 7.571D-17 1.
 3.886D-16 -2.849D-16 1.
"Q * R"
                                                               "Q * R"
                                                                         5.25 13.27 22.56 10.08
                                                                16.9
1. 1.
                  1.
                                                                8.06 23.25 3.21 21.08 13.28
 1. 0.
                 1.

    20.65
    10.43
    19.83
    11.52
    5.4

    21.78
    6.29
    17.63
    17.7
    20.3

    23.74
    10.5
    1.78
    10.18
    4.68

"Erro: "
                                                               "Erro: "
 0.
                                                                1.110D-15
```

Questão 3

Resultados de qr_GSP:

```
"QT * Q"
"QT * Q"
                                                           -1.179D-16 1.610D-16 -1.179D-17 -1.736D-16
        -3.989D-16 -7.652D-16 <sub>-1.179D-16</sub> 1. 2.375D-16 -2.032D-16 3.321D-16
                                              1.610D-16 2.375D-16 1. -5.936D-16 1.993D-16
-1.179D-17 -2.032D-16 -5.936D-16 1. 6.214D-16
-1.736D-16 3.321D-16 1.993D-16 6.214D-16 1.
-3.989D-16 1. 6.399D-16
-7.652D-16 6.399D-16 1.
"Q * R"
                                               "Q * R"
                                                        5.25 13.27 22.56 10.08
                                                16.9
 1. 1. 1.
                                                      23.25 3.21 21.08 13.28
10.43 19.83 11.52 5.4
6.29 17.63 17.7 20.36
                                                8.06
 1. 0. 1.
                                                20.65 10.43
21.78 6.29
     1. -3.584D-17
                                                23.74 10.5 1.78 10.18 4.68
"Erro: "
                                                3.775D-15
 0.
```

Questão 4

Questão 4.1

Resultados de qr_House_v1:

```
"QT * Q"
"OT * O"
                                                     8.491D-17 -1.777D-16 3.409D-16 -2.916D-16
                                          1.
             2.220D-16 2.220D-16
                                          8.491D-17 1. 1.432D-17 -3.253D-17 7.219D-17
 2.220D-16 1. -4.695D-16 -1.777D-16 1.432D-17 1.
                                                                          7.838D-17 -8.030D-17
                                         3.409D-16 -3.253D-17 7.838D-17 1. -5.749D-17 -2.916D-16 7.219D-17 -8.030D-17 -5.749D-17 1.
 2.220D-16 -4.695D-16 1.
"Q * R"
                                          "0 * R"
                                          16.9 5.25 13.27 22.56 10.08
              1.
                           1.
                                          8.06 23.25 3.21 21.08 13.28
              1.579D-16 1.
                                          20.65 10.43 19.83 11.52 5.4
21.78 6.29 17.63 17.7 20.36
23.74 10.5 1.78 10.18 4.68
              1. 1.
9.065D-17
"Erro: "
                                          "Erro: "
                                          3.042D-13
 5.303D-15
```

Resultados de qr_House_v2:

```
"QT * Q"
                                                    "OT * O"
                                                  1. 8.491D-17 -1.777D-16 3.409D-16 -2.916D-16 8.491D-17 1. 1.432D-17 -3.253D-17 7.219D-17 -1.777D-16 1.432D-17 1. 7.838D-17 -8.030D-17 3.409D-16 -3.253D-17 7.838D-17 1. -5.749D-17
                2.220D-16 2.220D-16
 2.220D-16 1. -4.695D-16
 2.220D-16 -4.695D-16 1.
                                                   -2.916D-16 7.219D-17 -8.030D-17 -5.749D-17 1.
"Q * R"
                                                    "Q * R"
                                                   16.9 5.25 13.27 22.56 10.08
1.
                 1.
                                 1.
                                                    8.06 23.25 3.21 21.08 13.2
20.65 10.43 19.83 11.52 5.4
                 1.579D-16 1.
 9.065D-17
                                 1.
                 1.
                                                   21.78 6.29 17.63 17.7 20.36
23.74 10.5 1.78 10.18 4.68
"Erro: "
                                                   "Erro: "
5.303D-15
                                                    3.042D-13
```

Questão 4.2

Matrizes:

```
M1 =
                                 M2 =
 30. 39. 48. 1. 10. 19.
                             28.
                                 35. 1. 6. 26. 19. 24.
    47. 7.
              9. 18. 27. 29.
                                 3. 32. 7.
                                                 21. 23. 25.
              17. 26. 35.
 46.
    6.
         8.
                            37.
                                           2.
                                  31. 9.
                                                 22. 27.
             25. 34.
          16.
                        36.
                             45.
     14.
                                 8. 28. 33.
                                                 17. 10.
    15. 24. 33. 42. 44. 4.
                                  30. 5. 34. 12. 14. 16.
 21. 23. 32. 41. 43. 3. 12.
                                  4. 36.
                                            29.
                                                 13. 18.
 22. 31. 40. 49. 2. 11. 20.
 H =
       -1176.
                8820. -29400. 48510. -38808.
                         1128960. -1940400.
         37632.
                -317520.
                                           1596672. -504504.
  -1176.
  8820.
        -317520. 2857680. -10584000. 18711000. -15717240. 5045040.
  -29400. 1128960. -10584000. 40320000. -72765000. 62092800. -20180160.
  48510. -1940400. 18711000. -72765000. 1.334D+08 -1.153D+08 37837800.
  -38808. 1596672. -15717240. 62092800. -1.153D+08 1.006D+08 -33297264.
  12012. -504504. 5045040. -20180160. 37837800. -33297264. 11099088.
```

Resultados de qr_GS:

```
"OT * O"
                                                                                         "OT * O"
             2.961D-16 2.524D-16 -1.737D-17 2.146D-16 3.702D-16 2.984D-16
                                                                                                       8.327D-17 -3.469D-17 1.665D-16 8.327D-16 -0.1779955
1. -1.596D-16 -6.384D-16 -1.874D-15 0.4804077
 2.961D-16
                                                                                         8.327D-17 1.
2.524D-16 -5.502D-16
                                                                                                      -1.596D-16
                          1.
                                      6.859D-17 -5.777D-17 -2.947D-16 5.031D-17
                                                                                                                                  4.510D-16 1.638D-15 -0.3860157
                                                                                         -3.469D-17
-1.737D-17 2.066D-17
                          6 859D-17
                                      1.
6.106D-17
                                                   6.106D-17 5.715D-17 -3.816D-17
1. -2.566D-16 -1.180D-16
                                                                                          1.665D-16 -6.384D-16 4.510D-16 1.
                                                                                                                                                 4.413D-15 -0.7323399
 2.146D-16 -2.806D-16
                        -5.777D-17
                                                                                                                                 4.399D-15
                                                                                          8.188D-16 -1.853D-15 1.665D-15
                                                                                                                                                1.
                                                                                                                                                             -0.1757462
 3.702D-16 -2.699D-16 -2.947D-16
                                      5.715D-17 -2.566D-16 1.
                                                                          -4.814D-16
                                                                                                                                 -0.7323399 -0.1757462
                                                                                          -0.1779955
                                                                                                      0.4804077
                                                                                                                   -0.3860157
                                     -3.811D-17 -8.289D-17 -4.693D-16
 2.957D-16 -2.390D-16
                         3.067D-17
                                                                                         "Q * R"
"Q * R"
 30.
      39.
                          10.
                               19.
                                                                                          35.
                                                                                                              26.
                                                                                                                     19.
                                                                                                                           24.
                                      29.
                                                                                                 32.
                                                                                                        7.
                                                                                                              21.
                                                                                                                     23.
                                                                                                                            25.
                          18.
                                27.
 38.
 46.
                          26.
                                35.
                                      37.
                                                                                          31.
                                                                                                        2.
                                                                                                               22.
                                                                                                                     27.
                                                                                                                            20.
                                       45.
                                                                                          8.
                                                                                                 28.
                                                                                                        33.
                                                                                                              17.
                                                                                                                     10.
                                                                                                                            15.
 13.
       15.
             24.
                   33.
                          42.
                                44.
                                      4.
                                                                                          30.
                                                                                                        34.
                                                                                                 36
                                                                                                        29.
22.
       31.
             40.
                   49.
                          2.
                                11.
                                      20.
                                                                                         "Erro: "
"Erro: "
 1.932D-14
                                          "QT * Q"
                                                       5.743D-15 6.711D-14 1.474D-12 3.374D-11 5.990D-10 2.937D-09 1. -3.752D-12 -6.192D-11 -5.078D-10 -2.773D-09 -2.140D-09
                                          5.743D-15
                                           6.711D-14 -3.752D-12 1.
                                                                               2.642D-09
                                                                                            4.953D-08 0.0000005 0.0000008
                                           1.474D-12 -6.192D-11
                                                                                            -0.0000022 -0.0000476
                                                                   4.953D-08 -0.0000022
                                           3.374D-11 -5.078D-10
                                                                                                        0.0020765 0.0173262
                                          5.990D-10 -2.773D-09
2.937D-09 -2.140D-09
                                                                   0.0000005
                                                                              -0.0000476
-0.0001646
                                                                                            0.0020765
                                                                                            0.0173262 -0.9198884
                                          49.
                                                   -1176.
                                                               8820.
                                                                          -29400.
                                                                                        48510.
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                                                                                                                 12012.
                                          -1176.
                                                              -317520.
                                                                           1128960.
                                                                                       -1940400.
                                                   37632.
                                                                                                    1596672.
                                                                                                                -504504
                                          8820.
                                                  -317520.
                                                               2857680.
                                                                          -10584000.
                                                                                       18711000. -15717240.
                                                                                                                 5045040
                                                                          -72765000.
                                                                                                  -1.153D+08
                                           48510. -1940400.
                                                               18711000.
                                                                                        1.334D+08
                                                                                                                 37837800.
                                          -38808.
                                                   1596672.
                                                              -15717240.
                                                                           62092800.
                                                                                      -1.153D+08
                                                                                                   1.006D+08
                                                                                                               -33297264
                                                               5045040.
                                          "Erro: "
                                         -8.149D-09
```

Resultados de qr_GSM:

```
"QT * Q"
             2.961D-16 1.185D-16 1.039D-17 1.869D-16 3.689D-16 1. -2.117D-16 6.230D-17 -3.083D-17 -2.147D-17
                                                                          3.001D-16
                                                                                                         8.327D-17 -2.082D-17 1.457D-16 5.829D-16 -0.2805445
                                                                            6.939D-18
                                                                                                                      1.908D-17 -4.163D-17 -4.996D-16
                                                                                           8.327D-17
                                                                                                        1.
                                                                                                                                                               0.2662204
1.185D-16 -2.117D-16
                         1.
                                      6.842D-17 -2.941D-17 -5.825D-17
                                                                            6.939D-18
                                                                                                        1.908D-17 1.
                                                                                                                                   -2.706D-16 -8.049D-16
                                                                                          -2.082D-17
                                                                                                                                                                0.6881763
1.039D-17 6.230D-17 6.842D-17 1.
1.869D-16 -3.083D-17 -2.941D-17 -1.055D-16
                                                                                           1.457D-16
                                                                                                       -4.163D-17 -2.706D-16 1.
                                                                                                                                                 -3.834D-16
                                                                                                                                                                0.4821467
                                                  1.
                                                              -1.393D-17
                                                                            3.469D-18
                                                                                           5.967D-16 -5.197D-16 -8.327D-16 -3.747D-16 1.
                         -5.825D-17 6.066D-17 -1.393D-17
2.283D-17 -3.769D-17 -1.714D-17
 3.689D-16 -2.147D-17 -5.825D-17
                                                                            5.985D-17
                                                                                                                                                               -0.1519866
                                                                                                                                   0.4821467 -0.1519866
 3.032D-16 -1.348D-17
                                                 -1.714D-17
                                                                                          -0.2805445
                                                                                                        0.2662204
                                                                                                                      0.6881763
"Q * R"
                                                                                          "0 * R'
 30.
      39.
                                19.
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                   9.
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 46.
       6.
                         26.
                                35.
                                      37.
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                                                                                                  9.
                                                                                                         2.
                                                                                                                22.
                                                                                                                       27.
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                          34.
42.
                                36.
44.
       14.
                   25.
                                      45.
                                                                                                  28.
                                                                                                         33.
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                                                                                                                              15.
       15.
             24.
                   33.
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 21.
      23.
             32.
                   41.
                          43.
                                з.
                                      12.
                                                                                           4.
                                                                                                  36.
                                                                                                        29.
                                                                                                                13.
                                                                                                                       18.
                                                                                                                             11.
"Erro: "
                                                                                          "Erro: "
1.132D-14
                                                                                           6.217D-15
                                          "QT * Q"
                                                        5.743D-15 6.647D-14
                                                                                 1.458D-12 3.367D-11 6.004D-10 9.004D-09
                                            5.743D-15
                                           6.647D-14 -2.542D-15 1.
                                                                                 3.474D-15 -1.395D-14 -8.087D-13 2.571D-11
                                           1.458D-12
3.367D-11
                                                       9.759D-15 3.474D-15
1.521D-12 -1.395D-14
                                                                                             -6.479D-15
                                                                                                         -7.221D-14
                                                                                                                     -4.455D-13
1.771D-13
                                                                                                           7.639D-15
                                                                                             1.
                                           6.004D-10 2.251D-11 -8.087D-13 -7.221D-14
9.004D-09 -6.177D-11 2.571D-11 -4.455D-13
                                                                                             7.639D-15
                                                                                                                      -4.011D-15
                                                                                             1.771D-13 -3.981D-15 1.
                                          "Q * R"
                                           49.
                                                   -1176.
                                                                8820.
                                                                            -29400.
                                                                                          48510.
                                                                                                     -38808.
                                           8820.
                                                  -317520.
                                                                2857680.
                                                                            -10584000.
                                                                                         18711000. -15717240.
                                                                                                                   5045040.
                                          -29400.
                                                    1128960.
                                                               -10584000.
                                                                             40320000.
                                                                                        -72765000.
                                                                                                     62092800.
-1.153D+08
                                                                                                                  -20180160
                                                                                         1.334D+08
                                           48510. -1940400.
                                                                18711000.
                                                                            -72765000.
                                          -38808.
                                                    1596672.
                                                               -15717240.
                                                                            62092800. -1.153D+08 1.006D+08
                                                                                                                  -33297264.
                                                                5045040.
                                                                           -20180160.
                                                                                         37837800. -33297264.
                                          "Erro: "
                                           3.115D-08
```

Resultados de qr_GSP:

```
"OT * O"
"OT * O"
            2.681D-16 1.861D-16 1.657D-16 3.342D-16 -8.761D-17 -1.492D-16
                                                                                                      5.551D-17 3.469D-17 -2.082D-16 -7.841D-16
 2.681D-16
                        -5.496D-16
                                     -4.287D-16 -2.299D-16 -4.337D-17
                                                                                         5.551D-17
                                                                                                                   1.388D-17
                                                                                                                                1.076D-16 -5.551D-17
                                                                                                                                                         -0.1339754
 1.861D-16 -5.496D-16
                                     2.867D-16 -2.231D-16
                                                              2.155D-18
                                                                                                      1.388D-17
                                                                                                                   1.
                        1.
                                                                           2.184D-16
                                                                                         3.469D-17
                                                                                                                                -2.429D-16
                                                                                                                                              8.327D-17 -0.0137505
 1.657D-16 -4.287D-16
                        2.867D-16
                                                 -1.186D-16
                                                              6.594D-17
                                                                           3.296D-16
                                                                                        -2.082D-16
                                                                                                      1.076D-16 -2.429D-16
                                                                                                                                1.
                                                                                                                                              3.955D-16
                                                                                                                                                          -0.117114
           -2.299D-16
                                                                           1.110D-16
 3.342D-16
                       -2.231D-16
                                                              -4.822D-16
                                                                                        -8.014D-16
                                                                                                    -7.633D-17
                                                                                                                   5.551D-17
                                                                                                                                 4.025D-16
                                     6.594D-17 -4.822D-16
-8.761D-17 -4.337D-17
                        2.155D-18
                                                                           1.431D-16
                                                                                                                                              0.9524189
                                                                                         0.2184912 -0.1339754 -0.0137505
                                                                                                                               -0.117114
           8.858D-17
                                      3.320D-16
                                                  1.010D-16
                                                               1.356D-16
                                                                                        "O * R"
"Q * R"
                                                                                               35.
                                                                                                             26.
                                                                                                                   19.
      39.
                   30.
                         10.
                                     28.
                                      29.
                                                                                         32.
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                                                                                                                          25.
 17.
      6.
                   46.
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                               35.
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                         34.
42.
                               36.
44.
 25.
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 33.
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                   13.
 41.
      23.
             32.
                   21.
                         43.
                               з.
                                      12.
                                                                                         36.
                                                                                                      29.
                                                                                                             13.
                                                                                                                   18.
                                                                                        "Erro: "
"Erro: "
                                                                                        -9.770D-15
1 554D-14
                                        "OT * O"
                                                                 9.688D-14 -5.321D-12 -2.029D-11 -7.408D-10 -1.491D-08
                                                     5.243D-17
                                                                              9.650D-13 -1.797D-12
5.993D-09 2.715D-08
                                                                                                     2.549D-10
0.0000006
                                         5.243D-17
                                                                 -1.340D-13
                                          9.688D-14
                                                                  5.993D-09
                                        -5.321D-12
                                                     9.650D-13
                                                                                          0.0000003
                                                                                                    -0.0000118
                                                                                                                 -0.0002895
                                        -2.029D-11
                                                     -1.797D-12
                                                                  2.715D-08
                                                                              0.0000003
                                                                                                     -0.0000328
                                                                  0.0000006
                                        -7.408D-10
                                                     2.549D-10
                                                                             -0.0000118
                                                                                         -0.0000328
                                                                                                                   0.0487894
                                                                                                      0.0487894
                                        -1.491D-08
                                                     4.180D-09
                                                                  0.0000082
                                                                            -0.0002895
                                                                                         -0.0009482
                                        "Q * R"
                                        -1940400.
                                                     37632.
                                                                -317520.
                                                                             1128960.
                                                                                        -1176.
                                                                                                  1596672.
                                                                                                              -504504.
                                         18711000.
-72765000.
                                                     -317520.
                                                                2857680.
                                                                            -10584000.
                                                                                         8820.
                                                                                                  -15717240.
                                                                                                               5045040.
                                                                -10584000.
                                                     1128960.
                                                                             40320000.
                                                                                         -29400
                                         1.334D+08
                                                     -1940400.
                                                                18711000.
                                                                            -72765000.
                                                                                         48510.
                                                                                                 -1.153D+08
                                                                                                               37837800.
                                         -1.153D+08
                                         37837800.
                                                                                                 -33297264.
                                                                                                               11099088.
                                                     -504504.
                                                                 5045040.
                                                                            -20180160.
                                                                                         12012.
                                         1.466D-08
```

Resultados de qr_House_v1:

```
"OT * O"
            -9.740D-17
                         1.362D-16 2.022D-16
                                                1.542D-17 -5.912D-18 -8.674D-18
                                                                                         1.
                                                                                                       0.
                                                                                                                     4.163D-17
                                                                                                                                  0.
                                                                                                                                                5.551D-17
-9.740D-17
                                                 4.640D-17
-4.466D-17
                                                             1.595D-19
-6.108D-17
                         1.008D-16
                                    -2.351D-17
                                                                          1.041D-17
4.163D-17
                                                                                                                                                9.021D-17
                                                                                                                                                             2.776D-17
 1.362D-16
                                     -3.654D-17
                                                                                         4.163D-17 -1.908D-17
                                                                                                                    1.
                                                                                                                                  1.388D-17
                                                                                                                                              -8.327D-17
                                                                                                                                                             1.943D-16
 2.022D-16 -2.351D-17 -3.654D-17
                                    1.
                                                 -1.056D-16 1.448D-16
                                                                          1.388D-17
                                                                                                                     1.388D-17
                                                                                                                                                1.561D-16 -2.776D-16
                                                                                         0.
                                                                                                       0.
                                                                                                                                  1.
            4.640D-17 -4.466D-17 -1.056D-16
1.595D-19 -6.108D-17 1.448D-16
                                                             -4.387D-17
                                                                                                       7.362D-17
                                                                                                                   -5.551D-17
                                                                                                                                  1.527D-16
                                                                                                                                                             -4.331D-16
                                     1.448D-16 -4.387D-17
-5.912D-18
                                                                          8.413D-17
                                                                                         0.
                                                                                                       2.776D-17
                                                                                                                    2.220D-16
                                                                                                                                 -2.776D-16 -4.331D-16
-1.150D-17
            1.217D-19
                         4.254D-17
                                    2.471D-17 -1.134D-16 8.838D-17
                                                                                        "Q * R"
"Q * R"
                                                                                                              26.
 38.
      47.
             7.
8.
                   9.
                         18.
                               27.
                                     29.
                                                                                         3.
                                                                                                32.
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 46.
                         26.
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                                                                                                              22.
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             16.
                   25.
                                      45.
       14.
                         34.
                               36.
 13.
      15.
             24.
                   33.
                         42.
                               44.
                                                                                         30.
                                                                                                5.
                                                                                                       34.
                                                                                                              12.
                                                                                                                     14.
                                                                                                                           16.
                                                                                          4.
                                                                                                36.
                                                                                                       29.
                                                                                                              13.
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                                                                                                                           11.
 22.
      31.
             40.
                   49.
                               11.
                                     20.
                                                                                        "Erro: "
"Erro: "
 3.793D-13
                                                                                        -4.019D-14
                                                      -4.305D-17
                                                                 -2.148D-17
                                                                             -5.120D-17
                                                                                           1.994D-17
                                          -4.305D-17
                                                                   7.787D-17
                                                                               1.561D-16 -9.149D-17
                                                                                                        3.436D-17
                                                                                                                    6.939D-17
                                                      7.787D-17
                                         -2.148D-17
                                                                               1.128D-17
                                                                                          -1.814D-16
                                                                                                      -6.161D-17
                                                                                                                    1.804D-16
                                                                               6.430D-17
                                          1.994D-17 -9.149D-17
                                                                 -1.814D-16
                                                                                           1.
                                                                                                       -6.244D-17
                                                                                                                   5.551D-17
                                                     3.436D-17
                                                                 -6.161D-17
                                                                               1.204D-16
                                                                                           -6 244D-17
                                                                                                                   -2.082D-16
                                                      8.169D-17
                                                                  1.963D-16 -7.018D-17
                                                                                                       -2.093D-16
                                                                                           3.919D-17
                                          3.003D-19
                                         "Q * R"
                                          49.
                                                  -1176.
                                                               8820.
                                                                          -29400.
                                                                                       48510.
                                                                                                   -38808.
                                                              -317520.
                                          -1176.
                                                   37632.
                                                                           1128960.
                                                                                      -1940400.
                                                                                                    1596672.
                                                                                                                504504.
                                          8820.
                                                  -317520.
                                                              2857680.
                                                                          -10584000.
                                                                                       18711000.
                                                                                                   -15717240.
                                                                                                                5045040.
                                                   1128960
                                                              -10584000.
                                                              18711000.
                                                                          -72765000.
                                                                                       1.334D+08
                                                                                                   -1.153D+08
                                          48510.
                                                  -1940400.
                                                                                                                37837800.
                                         -38808.
                                                   1596672.
                                                             -15717240.
                                                                           62092800.
                                                                                      -1.153D+08
                                                                                                   1.006D+08
                                                                                                               -33297264
                                                               5045040.
                                          12012.
                                                  -504504.
                                                                          -20180160.
                                                                                       37837800. -33297264.
                                         "Erro: '
                                         -7.351D-09
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Resultados de gr_House_v2:

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"QT * Q"
"OT * O"
                                                                                                                                                                                                                                                                              4.163D-17 0.
                          -9.740D-17 1.362D-16 2.022D-16 1.542D-17 -5.912D-18 8.674D-18 1. 1.008D-16 -2.351D-17 4.640D-17 1.595D-19 -1.041D-17 1.008D-16 1. -3.654D-17 -4.466D-17 -6.108D-17 -4.163D-17
                                                                                                                                                                                                                  1. 0.
                                                                                                                                                                                                                                                                                                                                                   5.551D-17
-9.740D-17 1.
1.362D-16 1.008D-16
                                                                                                                                                                                                                                                                                                                                                    9.021D-17 -2.776D-17
                                                                                                                                                                                                                                                                               -1.908D-17 0.
                                                                                                                                                                                                                   0.
                                                                                                                                                                                                                                                  1.
                                                                                                                                                                                                                                                                                                                    1.388D-17 -8.327D-17 -1.943D-16
                                                                                                                                                                                                                   4.163D-17 -1.908D-17 1.
1.362D-16 1.008D-16 1. -3.654D-17 -4.960D-17 -5.100D-17 -7.105D-16 1.448D-16 -1.388D-17 1.542D-17 4.640D-17 -4.646D-17 -1.056D-16 1. -4.387D-17 5.204D-17 -5.912D-18 1.595D-19 -6.108D-17 1.448D-16 -4.387D-17 1. -8.413D-17

    4.1630-17
    1.

    0.
    0.

    1.388D-17
    1.

    1.561D-10
    1.

    3.469D-17
    7.362D-17

    -5.551D-17
    1.527D-16

    1.
    4.3

    0.
    -2.776D-17

    -2.220D-16
    2.776D-16

    4.331D-16
    1.

                                                                                                                                                                                                                                                                                                                   1. 1.561D-16 2.776D-16
1.527D-16 1. 4.331D-16
 -5.912D-18 1.595D-19 -6.108D-17 1.448D-16 -4.387D-17 1. -8.413D-17 1.150D-17 -1.217D-19 -4.254D-17 -2.471D-17 1.134D-16 -8.838D-17 1.
                                                                                                                                                                                                                 "Q * R"
"Q * R"
  30. 39.
                                                                                                                                                                                                                                                   6.
                                                                                                                                                                                                                                                             26.
                                                                                                                                                                                                                                                                                   19. 24.
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                                            9.
17.
25.
                                                          18.
26.
34.
  38.
            47.
6.
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45.
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28.
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                              16.
              14.
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  13.
              15.
                              24.
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                                                                                                                                                                                                                                                                                                   11.
  22.
              31.
                              40.
                                             49.
                                                           2.
                                                                          11.
                                                                                         20.
 "Erro: "
                                                                                                                                                                                                                "Erro: "
  3.810D-13
                                                                                                                                                                                                                -4.374D-14
                                                                                                    "OT * O"

    1.
    -4.305D-17
    -2.148D-17
    -5.120D-17
    1.994D-17
    7.987D-17
    1.388D-17

    -4.305D-17
    1.
    7.787D-17
    1.561D-16
    -9.149D-17
    3.436D-17
    -6.939D-17

    -2.148D-17
    7.787D-17
    1.
    1.128D-17
    -1.814D-16
    -6.161D-17
    -1.804D-16

                                                                                                   -2.148D-17 7.787D-17 1.
-5.120D-17 1.561D-16 1.128D-17
1.994D-17 -9.149D-17 -1.814D-16
7.987D-17 3.436D-17 -6.161D-17
-3.003D-19 -8.169D-17 -1.963D-16
                                                                                                                                                                                             1. 6.430D-17 1.20D-16 1.10D-16 6.430D-17 1. -6.244D-17 -5.551D-17 1.204D-16 -6.244D-17 1. 2.092D-16 7.018D-17 -3.919D-17 2.093D-16 1.
                                                                                                    "0 * R"
                                                                                                                        -1176.
                                                                                                                                                     8820.
                                                                                                                                                                                  -29400.
                                                                                                                                                                                                                  48510.
                                                                                                                                                                                                                                            -38808.
                                                                                                      49.
                                                                                                                                                                                                                                                                             12012.

        49.
        -1176.
        8820.
        -29400.
        48510.
        -38808.
        -38698.
        -12012.

        -1176.
        37632.
        -317520.
        1128960.
        -1940400.
        1596672.
        -504504.

        8820.
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        2857680.
        -10584000.
        18711000.
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        5045040.

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        -72765000.
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        -20180160.

        48510.
        -1940400.
        18711000.
        -72765000.
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        -1.153D+08
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        62092800.
        -1.153D+08
        1.066D+08
        -33297264.

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        5045040.
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        37837800.
        -33297264.
        11099088.

                                                                                                    "Erro: "
```

-7.351D-09