**Homework 3**

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1.

|  |  |
| --- | --- |
| **Highest Fold Ratio:** | **How Many Have It** |
| 800 | 34 |

|  |  |
| --- | --- |
| **Range** | **Count** |
| Val <= 2 | 411 |
| 2 < Val <= 4 | 285 |
| 8 < Val <= 16 | 942 |
| 16 < Val <= 32 | 3251 |
| 32 < Val <= 64 | 1129 |
| 64 < Val <= 128 | 611 |
| 128 < Val <= 256 | 258 |
| 256 < Val <= 512 | 112 |
| 512 < Val | 71 |
| **Total** | 7070 |

2.

b. (***Include answer in report***) List the top 50 genes with the highest S2N ratio along with their S2N values.

|  |  |  |
| --- | --- | --- |
| Top 50 S2N: |  |  |
| 1 | M55150\_at | 1.467641165 |
| 2 | X95735\_at | 1.444530875 |
| 3 | U50136\_rna1\_at | 1.421708308 |
| 4 | U22376\_cds2\_s\_at | 1.339307881 |
| 5 | M81933\_at | 1.204041677 |
| 6 | M16038\_at | 1.203217545 |
| 7 | M84526\_at | 1.201419811 |
| 8 | M23197\_at | 1.19597434 |
| 9 | U82759\_at | 1.19255629 |
| 10 | Y12670\_at | 1.184736877 |
| 11 | D49950\_at | 1.143703904 |
| 12 | M27891\_at | 1.133426544 |
| 13 | X59417\_at | 1.12463678 |
| 14 | X52142\_at | 1.122589116 |
| 15 | M28170\_at | 1.116755638 |
| 16 | X17042\_at | 1.105975049 |
| 17 | U05259\_rna1\_at | 1.103966367 |
| 18 | Y00787\_s\_at | 1.081994777 |
| 19 | M96326\_rna1\_at | 1.077189938 |
| 20 | U12471\_cds1\_at | 1.069730905 |
| 21 | U46751\_at | 1.064078049 |
| 22 | M80254\_at | 1.044394599 |
| 23 | M92287\_at | 1.043055722 |
| 24 | L13278\_at | 1.04203194 |
| 25 | U09087\_s\_at | 1.036256865 |
| 26 | L08246\_at | 1.03478374 |
| 27 | X74262\_at | 1.027773107 |
| 28 | M62762\_at | 1.023393307 |
| 29 | M31211\_s\_at | 1.022881216 |
| 30 | M28130\_rna1\_s\_at | 1.001285867 |
| 31 | D26156\_s\_at | 0.989097871 |
| 32 | M63138\_at | 0.983628011 |
| 33 | M31523\_at | 0.971227716 |
| 34 | M57710\_at | 0.967686169 |
| 35 | X15949\_at | 0.960090273 |
| 36 | M69043\_at | 0.958859986 |
| 37 | S50223\_at | 0.956733251 |
| 38 | U32944\_at | 0.954874872 |
| 39 | M81695\_s\_at | 0.95306583 |
| 40 | L47738\_at | 0.951380054 |
| 41 | M83652\_s\_at | 0.947504094 |
| 42 | X85116\_rna1\_s\_at | 0.94637181 |
| 43 | M11147\_at | 0.945755455 |
| 44 | Z15115\_at | 0.945199785 |
| 45 | M21551\_rna1\_at | 0.941980587 |
| 46 | M19045\_f\_at | 0.938075874 |
| 47 | X04085\_rna1\_at | 0.930498848 |
| 48 | L49229\_f\_at | 0.920745023 |
| 49 | X14008\_rna1\_f\_at | 0.914954098 |
| 50 | M91432\_at | 0.913520798 |

c. (***Include answer in report***) List the top 50 genes with the highest T-value along with their T-values.

|  |  |  |  |
| --- | --- | --- | --- |
| Top 50 T-Value: |  |  |  |
| 1 | M55150\_at |  | 8.091951183 |
| 2 | U22376\_cds2\_s\_at |  | 7.904300374 |
| 3 | X59417\_at |  | 6.803106346 |
| 4 | U50136\_rna1\_at |  | 6.435952103 |
| 5 | M31211\_s\_at |  | 6.294206502 |
| 6 | M28170\_at |  | 6.253971105 |
| 7 | U82759\_at |  | 6.243020468 |
| 8 | M92287\_at |  | 6.217365336 |
| 9 | U09087\_s\_at |  | 6.182424806 |
| 10 | U05259\_rna1\_at |  | 6.175126475 |
| 11 | M81933\_at |  | 6.164964999 |
| 12 | U12471\_cds1\_at |  | 6.146298795 |
| 13 | D26156\_s\_at |  | 6.097112519 |
| 14 | L13278\_at |  | 6.021341675 |
| 15 | X74262\_at |  | 6.016389062 |
| 16 | S50223\_at |  | 5.858625771 |
| 17 | X52142\_at |  | 5.833144157 |
| 18 | X95735\_at |  | 5.727643095 |
| 19 | L47738\_at |  | 5.715039288 |
| 20 | M31523\_at |  | 5.677543403 |
| 21 | Z15115\_at |  | 5.615471093 |
| 22 | M11147\_at |  | 5.588644932 |
| 23 | D49950\_at |  | 5.588063309 |
| 24 | X63469\_at |  | 5.583296318 |
| 25 | D38073\_at |  | 5.562983485 |
| 26 | U32944\_at |  | 5.442991882 |
| 27 | U26266\_s\_at |  | 5.42520538 |
| 28 | J05243\_at |  | 5.406254456 |
| 29 | L49229\_f\_at |  | 5.398203084 |
| 30 | X15949\_at |  | 5.389656222 |
| 31 | X17042\_at |  | 5.388623496 |
| 32 | M21551\_rna1\_at |  | 5.377292024 |
| 33 | M31303\_rna1\_at |  | 5.370570645 |
| 34 | Y08612\_at |  | 5.36665273 |
| 35 | U20998\_at |  | 5.36123935 |
| 36 | AF012024\_s\_at |  | 5.333337212 |
| 37 | X56411\_rna1\_at |  | 5.327391771 |
| 38 | Y12670\_at |  | 5.324928168 |
| 39 | U29175\_at |  | 5.322715508 |
| 40 | M91432\_at |  | 5.300882197 |
| 41 | HG1612-HT1612\_at |  | 5.276868788 |
| 42 | M13792\_at |  | 5.222356203 |
| 43 | D63874\_at |  | 5.206860895 |
| 44 | U72342\_at |  | 5.206761353 |
| 45 | X97267\_rna1\_s\_at |  | 5.203003458 |
| 46 | X76648\_at |  | 5.195203157 |
| 47 | U35451\_at |  | 5.144391195 |
| 48 | Z69881\_at |  | 5.143815953 |
| 49 | D63880\_at |  | 5.125101526 |
| 50 | M62762\_at |  | 5.122153112 |

d. (***Include answer in report***) How many genes are common between top 50 genes selected using S2N and those selected using T-value (i.e. exist in BOTH lists)? List them **(Answer: there should 31 genes in common)**

**The highlighted genes above are the genes that both lists have in common. There are 31.**