Max error

New alg bubble sort

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Functions | Points amount | Iter amount | Avg. err | Def points amount | Def iter amount | Def Avg. err |
| X^2\*y^2  (def points) | 4956 | 248 | 39097.6106956 | 2529 | 126 | 36025.7926342871 |
| X^2\*y^2  (new points) | 813 | 41 | 0.153026051436363 | 189 | 9 | 151.678212598857 |
| sin(x)cos(y)  (old point) | 1636 | 82 | 0.507410807961114 | 4249 | 212 | 0.396953671340446 |
| sin(x)cos(y)  (new point) | 18 | 1 | 10.969321183295 | 4609 | 230 | 0.509530806825164 |
| SinXCosXCosY | 1256 | 63 | 0.300986924929177 | 2669 | 133 | 0.654280655690424 |
| sin(x1 + x2) / (x1 + x2) | 556 | 28 | 0.531804097888924 | 289 | 14 | 11.4380300286049 |
| Sqrt(X)Sqrt(Y) | 749 | 38 | 0.228499021085426 | 249 | 12 | 7.0200566848254 |
| Ln(X)\*y^3 | 2236 | 112 | 2.17863563847506 | 829 | 41 | 100.414920434202 |

New alg stable sort

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Functions | Points amount | Iter amount | Avg. err | Def points amount | Def iter amount | Def Avg. err |
| X^2\*y^2  (def points) | 4676 | 234 | 24231.65425705 | 2529 | 126 | 36025.7926342871 |
| X^2\*y^2  (new points) | 753 | 38 | 0.17256518475 | 189 | 9 | 151.678212598857 |
| sin(x)cos(y)  (old point) | 3056 | 153 | 0.389464616573637 | 4249 | 212 | 0.396953671340446 |
| sin(x)cos(y)  (new point) | 18 | 1 | 10.969321183295 | 4609 | 230 | 0.509530806825164 |
| SinXCosXCosY | 1256 | 63 | 0.31867483194306 | 2669 | 133 | 0.654280655690424 |
| sin(x1 + x2) / (x1 + x2) | 356 | 18 | 1.0119251707055 | 289 | 14 | 11.4380300286049 |
| Sqrt(X)Sqrt(Y) | 949 | 48 | 0.164390830298134 | 249 | 12 | 7.0200566848254 |
| Ln(X)\*y^3 | 1956 | 98 | 3.15326345592643 | 829 | 41 | 100.414920434202 |

Average error

New alg bubble sort

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Functions | Points amount | Iter amount | Avg. err | Def points amount | Def iter amount | Def Avg. err |
| X^2\*y^2  (def points) | 4956 | 248 | 39097.6106956 | 2529 | 126 | 36025.7926342871 |
| X^2\*y^2  (new points) | 493 | 25 | 0.357602845669181 | 89 | 4 | 167.456382484581 |
| sin(x)cos(y)  (old point) | 18 | 1 | 1.83004575486349 | 29 | 1 | 13.5438326811283 |
| sin(x)cos(y)  (new point) | 18 | 1 | 10.969321183295 | 29 | 1 | 209.455876148844 |
| SinXCosXCosY | 536 | 27 | 0.507624592422127 | 1109 | 55 | 1.93482089844949 |
| sin(x1 + x2) / (x1 + x2) | 156 | 8 | 3.04032826911837 | 289 | 14 | 11.4380300286049 |
| Sqrt(X)Sqrt(Y) | 229 | 12 | 1.79720174521245 | 249 | 12 | 7.0200566848254 |
| Ln(X)\*y^3 | 1176 | 59 | 5.48997143830459 | 709 | 35 | 116.069049689719 |

New alg stable sort

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Functions | Points amount | Iter amount | Avg. err | Def points amount | Def iter amount | Def Avg. err |
| X^2\*y^2  (def points) | 4676 | 234 | 24231.65425705 | 2529 | 126 | 36025.7926342871 |
| X^2\*y^2  (new points) | 573 | 29 | 0.272516455538361 | 89 | 4 | 167.456382484581 |
| sin(x)cos(y)  (old point) | 18 | 1 | 1.83004575486349 | 29 | 1 | 13.5438326811283 |
| sin(x)cos(y)  (new point) | 18 | 1 | 10.969321183295 | 29 | 1 | 209.455876148844 |
| SinXCosXCosY | 476 | 24 | 0.599277878632426 | 1109 | 55 | 1.93482089844949 |
| sin(x1 + x2) / (x1 + x2) | 156 | 8 | 3.10756377495306 | 289 | 14 | 11.4380300286049 |
| Sqrt(X)Sqrt(Y) | 229 | 12 | 1.57870581852398 | 249 | 12 | 7.0200566848254 |
| Ln(X)\*y^3 | 1516 | 76 | 3.83235794617622 | 709 | 35 | 116.069049689719 |

Random forest

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Functions | Points amount | Iter amount | Avg. err | Def points amount | Def iter amount | Def Avg. err |
| sin(x)cos(y) | 3309 | 165 | 1.0585053 | 29 | 1 | 13.5438326811283 |

Calc err avg 0.85866611861992

1049 points was requested from the real function

Test SquaresProducts x1^2 \* x2^2 \* ... END in 52 iterations

RF By diff real and model

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Functions | Points amount | Iter amount | Avg. err | Def points amount | Def iter amount | Def Avg. err |
| LGFunc | 109 | 10 | 0.00159432316082308 |  |  |  |

By diff by old model and new model

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Functions | Points amount | Iter amount | Avg. err | Def points amount | Def iter amount | Def Avg. err |
| sin(x)cos(y) | 3309 | 165 | 1.0585053 | 29 | 1 | 13.5438326811283 |