

```
/*
 * Runtime Report In Seconds
 */

2 20000      1.05e-04 1.35e-04 1.67e-04 3.15e-04 2.18e-04
2 40000      4.71e-04 4.71e-04 3.76e-04 4.34e-04 4.71e-04
4 20000      3.09e-04 2.58e-04 2.10e-04 1.50e-04 2.18e-04
4 40000      2.69e-04 4.03e-04 2.09e-04 3.06e-04 2.82e-04
6 20000      1.72e-04 1.58e-04 1.36e-04 1.29e-04 1.57e-04
6 40000      2.82e-04 2.57e-04 2.56e-04 2.73e-04 2.56e-04
8 20000      1.29e-04 1.89e-04 1.36e-04 1.29e-04 1.49e-04
8 40000      2.82e-04 5.44e-04 3.13e-04 4.03e-04 4.03e-04
```

```
/*
 * Runtime Report In Seconds
 */

2 20000      4.44e-05 6.89e-05 4.48e-05 5.04e-05 8.14e-05
2 40000      8.65e-05 1.13e-04 8.88e-05 8.70e-05 8.69e-05
4 20000      4.93e-05 2.95e-05 6.04e-05 5.91e-05 8.55e-05
4 40000      1.17e-04 1.34e-04 9.84e-05 9.55e-05 9.04e-05
6 20000      6.93e-05 9.15e-05 4.86e-05 3.80e-04 4.85e-05
6 40000      1.75e-04 1.03e-04 9.08e-05 7.16e-05 7.83e-05
8 20000      8.83e-05 6.09e-05 3.59e-05 7.95e-05 1.03e-04
8 40000      1.03e-04 1.12e-04 1.00e-04 1.19e-04 1.14e-04
```

```
/*
 * CPU Report
 */
```

```
/* CPU */
```

```
model name      : Intel(R) Core(TM) i7-4770K CPU @ 3.50GHz
vendor_id       : GenuineIntel
cpu cores       : 4
siblings        : 8
cache size      : 8192 KB
```

```
/* Calculation Reports */
```

```
2 Cores CPU - Size Problem 20000
```

```
Try 1
```

```
Runtime 4.44e-05 [s]
```

Process	Total	problemSize	Total	Local	Total
0	2	10000	20000	0.463648	0.463648
1	2	10000	20000	1.287002	3.141593

```
-----
Try 2
```

```
Runtime 6.89e-05 [s]
```

Process	Total	problemSize	Total	Local	Total
0	2	10000	20000	0.463648	0.463648
1	2	10000	20000	1.287002	3.141593

```
-----
Try 3
```

```
Runtime 4.48e-05 [s]
```

Process	Total	problemSize	Total	Local	Total
0	2	10000	20000	0.463648	0.463648
1	2	10000	20000	1.287002	3.141593

```
-----
Try 4
```

```
Runtime 5.04e-05 [s]
```

Process	Total	problemSize	Total	Local	Total
0	2	10000	20000	0.463648	0.463648
1	2	10000	20000	1.287002	3.141593

```
-----
Try 5
```

```
Runtime 8.14e-05 [s]
```

Process	Total	problemSize	Total	Local	Total
0	2	10000	20000	0.463648	0.463648
1	2	10000	20000	1.287002	3.141593

```
-----
2 Cores CPU - Size Problem 40000
```

```
Try 1
```

```
Runtime 8.65e-05 [s]
```

Process	Total	problemSize	Total	Local	Total
0	2	20000	40000	0.463648	0.463648
1	2	20000	40000	1.287002	3.141593

```
-----
Try 2
```

```
Runtime 1.13e-04 [s]
```

Process	Total	problemSize	Total	Local	Total
0	2	20000	40000	0.463648	0.463648
1	2	20000	40000	1.287002	3.141593

0	2	20000	40000	0.463648	0.463648
1	2	20000	40000	1.287002	3.141593

Try 3

Runtime 8.88e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	2	20000	40000	0.463648	0.463648
1	2	20000	40000	1.287002	3.141593

Try 4

Runtime 8.70e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	2	20000	40000	0.463648	0.463648
1	2	20000	40000	1.287002	3.141593

Try 5

Runtime 8.69e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	2	20000	40000	0.463648	0.463648
1	2	20000	40000	1.287002	3.141593

4 Cores CPU - Size Problem 20000

Try 1

Runtime 4.93e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	5000	20000	0.244979	0.244979
1	4	5000	20000	0.874676	1.854590
2	4	5000	20000	0.719414	2.574004
3	4	5000	20000	0.567588	3.141593

Try 2

Runtime 2.95e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	5000	20000	0.244979	0.244979
1	4	5000	20000	0.874676	1.854590
2	4	5000	20000	0.719414	2.574004
3	4	5000	20000	0.567588	3.141593

Try 3

Runtime 6.04e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	5000	20000	0.244979	0.244979
1	4	5000	20000	0.719414	1.699329
2	4	5000	20000	0.874676	2.574004
3	4	5000	20000	0.567588	3.141593

Try 4

Runtime 5.91e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	5000	20000	0.244979	0.244979
1	4	5000	20000	0.874676	1.854590
2	4	5000	20000	0.719414	2.574004
3	4	5000	20000	0.567588	3.141593

Try 5

Runtime 8.55e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	5000	20000	0.244979	0.244979
1	4	5000	20000	0.719414	1.699329
2	4	5000	20000	0.874676	2.574004
3	4	5000	20000	0.567588	3.141593

4 Cores CPU - Size Problem 40000

Try 1

Runtime 1.17e-04 [s]

Process	Total	problemSize	Total	Local	Total
0	4	10000	40000	0.244979	0.244979
1	4	10000	40000	0.874676	1.854590
2	4	10000	40000	0.719414	2.574004
3	4	10000	40000	0.567588	3.141593

Try 2

Runtime 1.34e-04 [s]

Process	Total	problemSize	Total	Local	Total
0	4	10000	40000	0.244979	0.244979
1	4	10000	40000	0.567588	1.547503
2	4	10000	40000	0.874676	2.422179
3	4	10000	40000	0.719414	3.141593

Try 3

Runtime 9.84e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	10000	40000	0.244979	0.244979
1	4	10000	40000	0.874676	1.854590
2	4	10000	40000	0.719414	2.574004
3	4	10000	40000	0.567588	3.141593

Try 4

Runtime 9.55e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	10000	40000	0.244979	0.244979
1	4	10000	40000	0.874676	1.854590
2	4	10000	40000	0.719414	2.574004
3	4	10000	40000	0.567588	3.141593

Try 5

Runtime 9.04e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	10000	40000	0.244979	0.244979
1	4	10000	40000	0.874676	1.854590
2	4	10000	40000	0.719414	2.574004
3	4	10000	40000	0.567588	3.141593

6 Cores CPU - Size Problem 20000

Try 1

Runtime 6.93e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	3333	20000	0.165181	0.165181
1	6	3333	20000	0.362706	1.023431
2	6	3333	20000	0.626528	1.649958
3	6	3333	20000	0.567695	2.217653
4	6	3333	20000	0.497512	2.715165

5	6	3333	20000	0.427021	3.142187
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Try 2

Runtime 9.15e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	3333	20000	0.165181	0.165181
1	6	3333	20000	0.567695	1.228419
2	6	3333	20000	0.626528	1.854947
3	6	3333	20000	0.427021	2.281968
4	6	3333	20000	0.362706	2.644674
5	6	3333	20000	0.497512	3.142187

Try 3

Runtime 4.86e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	3333	20000	0.165181	0.165181
1	6	3333	20000	0.567695	1.228419
2	6	3333	20000	0.427021	1.655441
3	6	3333	20000	0.497512	2.152953
4	6	3333	20000	0.626528	2.779480
5	6	3333	20000	0.362706	3.142187

Try 4

Runtime 3.80e-04 [s]

Process	Total	problemSize	Total	Local	Total
0	6	3333	20000	0.165181	0.165181
1	6	3333	20000	0.427021	1.087746
2	6	3333	20000	0.626528	1.714273
3	6	3333	20000	0.567695	2.281968
4	6	3333	20000	0.362706	2.644674
5	6	3333	20000	0.497512	3.142187

Try 5

Runtime 4.85e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	3333	20000	0.165181	0.165181
1	6	3333	20000	0.427021	1.087746
2	6	3333	20000	0.362706	1.450452
3	6	3333	20000	0.567695	2.018147
4	6	3333	20000	0.626528	2.644674
5	6	3333	20000	0.497512	3.142187

6 Cores CPU - Size Problem 40000

Try 1

Runtime 1.75e-04 [s]

Process	Total	problemSize	Total	Local	Total
0	6	6666	40000	0.165157	0.165157
1	6	6666	40000	0.362656	1.023283
2	6	6666	40000	0.626438	1.649721
3	6	6666	40000	0.497443	2.147164
4	6	6666	40000	0.426962	2.574126
5	6	6666	40000	0.567615	3.141741

Try 2

Runtime 1.03e-04 [s]

Process	Total	problemSize	Total	Local	Total
0	6	6666	40000	0.165157	0.165157
1	6	6666	40000	0.626438	1.287065
2	6	6666	40000	0.567615	1.854680

3	6	6666	40000	0.497443	2.352123
4	6	6666	40000	0.426962	2.779085
5	6	6666	40000	0.362656	3.141741

Try 3

Runtime 9.08e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	6666	40000	0.165157	0.165157
1	6	6666	40000	0.626438	1.287065
2	6	6666	40000	0.567615	1.854680
3	6	6666	40000	0.497443	2.352123
4	6	6666	40000	0.426962	2.779085
5	6	6666	40000	0.362656	3.141741

Try 4

Runtime 7.16e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	6666	40000	0.165157	0.165157
1	6	6666	40000	0.362656	1.023283
2	6	6666	40000	0.626438	1.649721
3	6	6666	40000	0.567615	2.217336
4	6	6666	40000	0.426962	2.644298
5	6	6666	40000	0.497443	3.141741

Try 5

Runtime 7.83e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	6666	40000	0.165157	0.165157
1	6	6666	40000	0.426962	1.087590
2	6	6666	40000	0.567615	1.655204
3	6	6666	40000	0.362656	2.017861
4	6	6666	40000	0.497443	2.515304
5	6	6666	40000	0.626438	3.141741

8 Cores CPU - Size Problem 20000

Try 1

Runtime 8.83e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	2500	20000	0.124355	0.124355
1	8	2500	20000	0.379807	0.877227
2	8	2500	20000	0.482495	1.359721
3	8	2500	20000	0.455168	1.814890
4	8	2500	20000	0.419508	2.234397
5	8	2500	20000	0.339607	2.574004
6	8	2500	20000	0.301316	2.875320
7	8	2500	20000	0.266273	3.141593

Try 2

Runtime 6.09e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	2500	20000	0.124355	0.124355
1	8	2500	20000	0.455168	0.952588
2	8	2500	20000	0.379807	1.332395
3	8	2500	20000	0.482495	1.814890
4	8	2500	20000	0.419508	2.234397
5	8	2500	20000	0.339607	2.574004
6	8	2500	20000	0.266273	2.840277
7	8	2500	20000	0.301316	3.141593

Try 3

Runtime 3.59e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	2500	20000	0.124355	0.124355
1	8	2500	20000	0.482495	0.979915
2	8	2500	20000	0.419508	1.399422
3	8	2500	20000	0.339607	1.739030
4	8	2500	20000	0.266273	2.005302
5	8	2500	20000	0.455168	2.460470
6	8	2500	20000	0.379807	2.840277
7	8	2500	20000	0.301316	3.141593

Try 4

Runtime 7.95e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	2500	20000	0.124355	0.124355
1	8	2500	20000	0.482495	0.979915
2	8	2500	20000	0.455168	1.435083
3	8	2500	20000	0.379807	1.814890
4	8	2500	20000	0.419508	2.234397
5	8	2500	20000	0.339607	2.574004
6	8	2500	20000	0.301316	2.875320
7	8	2500	20000	0.266273	3.141593

Try 5

Runtime 1.03e-04 [s]

Process	Total	problemSize	Total	Local	Total
0	8	2500	20000	0.124355	0.124355
1	8	2500	20000	0.379807	0.877227
2	8	2500	20000	0.455168	1.332395
3	8	2500	20000	0.301316	1.633710
4	8	2500	20000	0.482495	2.116205
5	8	2500	20000	0.266273	2.382478
6	8	2500	20000	0.339607	2.722085
7	8	2500	20000	0.419508	3.141593

8 Cores CPU - Size Problem 40000

Try 1

Runtime 1.03e-04 [s]

Process	Total	problemSize	Total	Local	Total
0	8	5000	40000	0.124355	0.124355
1	8	5000	40000	0.455168	0.952588
2	8	5000	40000	0.482495	1.435083
3	8	5000	40000	0.419508	1.854590
4	8	5000	40000	0.379807	2.234397
5	8	5000	40000	0.339607	2.574004
6	8	5000	40000	0.301316	2.875320
7	8	5000	40000	0.266273	3.141593

Try 2

Runtime 1.12e-04 [s]

Process	Total	problemSize	Total	Local	Total
0	8	5000	40000	0.124355	0.124355
1	8	5000	40000	0.482495	0.979915
2	8	5000	40000	0.455168	1.435083
3	8	5000	40000	0.301316	1.736398
4	8	5000	40000	0.419508	2.155906
5	8	5000	40000	0.339607	2.495513
6	8	5000	40000	0.266273	2.761786
7	8	5000	40000	0.379807	3.141593

Try 3

Runtime 1.00e-04 [s]

Process	Total	problemSize	Total	Local	Total
0	8	5000	40000	0.124355	0.124355
1	8	5000	40000	0.379807	0.877227
2	8	5000	40000	0.482495	1.359721
3	8	5000	40000	0.455168	1.814890
4	8	5000	40000	0.419508	2.234397
5	8	5000	40000	0.339607	2.574004
6	8	5000	40000	0.301316	2.875320
7	8	5000	40000	0.266273	3.141593

Try 4

Runtime 1.19e-04 [s]

Process	Total	problemSize	Total	Local	Total
0	8	5000	40000	0.124355	0.124355
1	8	5000	40000	0.455168	0.952588
2	8	5000	40000	0.482495	1.435083
3	8	5000	40000	0.379807	1.814890
4	8	5000	40000	0.339607	2.154497
5	8	5000	40000	0.301316	2.455812
6	8	5000	40000	0.419508	2.875320
7	8	5000	40000	0.266273	3.141593

Try 5

Runtime 1.14e-04 [s]

Process	Total	problemSize	Total	Local	Total
0	8	5000	40000	0.124355	0.124355
1	8	5000	40000	0.455168	0.952588
2	8	5000	40000	0.266273	1.218861
3	8	5000	40000	0.482495	1.701355
4	8	5000	40000	0.419508	2.120863
5	8	5000	40000	0.379807	2.500670
6	8	5000	40000	0.339607	2.840277
7	8	5000	40000	0.301316	3.141593