1. See code in D.
2. Testing result



|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | N | NSIM | Call | SD | SE | Put | SD | SE |
| Batch 1 | 100 | 10, 000 | 2.1378 | 0.0000625 | 0.00625867 | 5.90807 | 0.00017082 | 0.017082 |
| 100 | 1,000, 000 | 2.13043 | 0.0000062 | 0.00194848 | 5.87321 | 0.0000169 | 0.00535736 |
| 1000 | 10, 000 | 2.13162 | 0.0000623 | 0.0062305 | 5.93793 | 0.000171288 | 0.0171288 |
| 1000 | 1,000, 000 | 2.13465 | 0.0000623 | 0.00195748 | 5.84066 | 0.000169295 | 0.00535272 |



|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | N | NSIM | Call | SD | SE | Put | SD | SE |
| Batch 2 | 400 | 10, 000 | 7.87596 | 0.000223734 | 0.0223734 | 8.09741 | 0.000235032 | 0.0235032 |
| 400 | 1,00,0 00 | 8.03556 | 0.000023259 | 0.00735544 | 8.02401 | 0.000024431 | 0.00735544 |
| 4000 | 10, 000 | 8.16978 | 0.000237715 | 0.0237715 | 8.17878 | 0.000022351 | 0.02235141 |
| 4000 | 1,00, 000 | 7.99872 | 0.000023011 | 0.00727677 | 7.99991 | 0.000022091 | 0.00677671 |

I observed that SD and SE decrease with the increase of NSIM.