Project 2 Report

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Task 1-1

Round	$\bar{r}$	$\bar{s}$
1	**2.395**	**0.007**
2	**2.392**	**0.007**
3	**2.391**	**0.007**
4	**2.389**	**0.007**
5	**2.388**	**0.007**
6	**2.399**	**0.007**
7	**2.392**	**0.007**
8	**2.389**	**0.007**
9	**2.387**	**0.007**
10	**2.394**	**0.007**

Task 1-2

$\lambda = 0.1$

Round	$\bar{r}$	$\bar{s}$
1	**0.400**	**0.007**
2	**0.396**	**0.007**
3	**0.392**	**0.007**
4	**0.399**	**0.007**
5	**0.395**	**0.007**
6	**0.392**	**0.007**
7	**0.390**	**0.007**
8	**0.399**	**0.007**
9	**0.393**	**0.007**
10	**0.397**	**0.007**

$\lambda = 1.0$

Round	$\bar{r}$	$\bar{s}$
1	**0.398**	**0.001**
2	**0.399**	**0.001**
3	**0.397**	**0.001**
4	**0.397**	**0.001**

5	**0.396**	**0.001**
6	**0.397**	**0.001**
7	**0.398**	**0.001**
8	**0.398**	**0.001**
9	**0.398**	**0.001**
10	**0.398**	**0.001**

λ = 10.0

Round	$\bar{I}$	$\bar{s}$
1	**0.368**	**0.026**
2	**0.413**	**0.111**
3	**0.362**	**0.027**
4	**0.379**	**0.035**
5	**0.334**	**0.014**
6	**0.365**	**0.038**
7	**0.365**	**0.030**
8	**0.388**	**0.050**
9	**0.379**	**0.041**
10	**0.367**	**0.030**

λ = 1.0 has led to an estimator with best efficiency since sample mean of each round are nearly the same which means the data are so stable. On the other hand, the result with λ = 1.0 has the smallest scaled deviation value. It means that there are many samples close to the mean. Thus, the mean is more approach to the solution of the integral.

Task 2-1

Round	$\bar{I}$	$\bar{s}$
1	**6.288**	**0.019**
2	**6.291**	**0.019**
3	**6.283**	**0.019**
4	**6.300**	**0.019**
5	**6.261**	**0.019**
6	**6.289**	**0.019**
7	**6.263**	**0.019**
8	**6.288**	**0.019**
9	**6.292**	**0.019**
10	**6.266**	**0.019**

Task 2-2

Round	$\bar{I}$	$\bar{s}$
1	**0.418**	**0.003**
2	**0.421**	**0.003**
3	**0.418**	**0.003**
4	**0.418**	**0.003**
5	**0.415**	**0.003**
6	**0.416**	**0.003**
7	**0.419**	**0.003**
8	**0.418**	**0.003**
9	**0.418**	**0.003**
10	**0.418**	**0.003**

Task 3

Sample size = 500,000

Round	P	$\bar{s}$
1	**303.9**	**0.515**
2	**303.8**	**0.514**
3	**303.5**	**0.514**
4	**303.8**	**0.514**
5	**303.7**	**0.514**
6	**303.8**	**0.514**
7	**304.1**	**0.515**
8	**303.7**	**0.514**
9	**304.3**	**0.514**
10	**304.3**	**0.515**