

## =====HW 9.F Report=====

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### a) FDM Method

Batch# (N set to 9999)	Value Given By FDM	Real Value
Batch1	5.842068	5.84628
Batch2	7.963211	7.96557
Batch3	4.071285	4.07326
Batch4	65535	1.24750

From the result, we can see the FDM method output very accurate price for Batch 1, 2 and 3. However, for batch 4, the FDM method seems encountered some numerical error, which output 65536 as the result. Except for this, we can still claim that FDM works very well in predicting the actual result.

### b) Analysis of FDM Method

In this exercise, I change N to multiple value and check the value given by FDM in batch 1.

Batch 1	N	Value	Real Value
	9999	5.842068	5.84628
	4999	5.842093	5.84628
	1999	5.842167	5.84628
	1499	-8.9E+17	5.84628
	999	-4E+45	5.84628
	899	-1.6E+35	5.84628

**Conclusion:** We find the output of FDM is very stable and accurate when  $N \geq 1999$ . When  $N < 1999$ , the results output by the FDM become very unreasonable.