

PS 8

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Results Comparison

Question 5

The estimates obtained using matrices closely approximate the true β value with high precision.

Question 6

The estimates obtained using gradient closely approximate the true β value.

Question 7

The estimates obtained using nloptr's L-BFGS and Nelder-Mead algorithms are highly similar to each other and closely approximate the true β value.

Question 8

The estimates of $\hat{\beta}$ obtained using the `lm()` function closely approximate the true β values that were used to generate the data in (1). The Ordinary Least Squares (OLS) estimates are presented on the following page.

	(1)
X1	1.501 (0.002)
X2	-0.996 (0.002)
X3	-0.249 (0.002)
X4	0.747 (0.002)
X5	3.502 (0.002)
X6	-1.999 (0.002)
X7	0.501 (0.002)
X8	0.999 (0.002)
X9	1.253 (0.002)
X10	1.999 (0.002)
Num.Obs.	1×10^5
R2	0.991
R2 Adj.	0.991
AIC	144 993.2
BIC	145 097.9
Log.Lik.	-72 485.615
RMSE	0.50