Double Integrals over Rectangles

Question

Suppose we estimate the volume V of the solid lying below the graph of $f(x, y) = 4 - x^2 - y^2$ and above the square $\mathcal{R}$ given by $0 \leq x \leq 1$ and $0 \leq y \leq 1$, using a division into 4 equal squares. If L and U are the Riemann sums using lower left and upper right corners, respectively, how do V, L, and U compare?

A. $L < V < U$

B. $U < V < L$

C. $L < U < V$

D. $V < L < U$