

The interval $-1 \leq y \leq 1$ is the range of the entire sine function. However, when $-\pi \leq \theta \leq 0$, the y -values are negative or 0.

Instead of choosing the lowest point, you chose the point that is farthest to the left.

The correct range is $-1 \leq y \leq 0$, and the correct lowest point is $\left(-\frac{\pi}{2}, -1\right)$.