

Quiz 9

A sinusoid of infinite duration $y(n) = \cos(\omega \cdot n)$ with period $N = 2\pi/\omega$ is multiplied by a rectangular window $w_r(n)$ of length N at position P :

$$x(n) = y(n - P) \cdot w_r(n).$$

What can be said about the N -point DFT of $x(n)$, $0 \leq n < N$?

A: $X(k)$ depends on P .

B: $|X(k)| = \delta(k - 1) + \delta(k - N + 1)$, $0 \leq k < N$.

C: $X(k) = \frac{1}{N} \text{DFT}\{y(n - P)\} * \text{DFT}\{w_r(n)\}$.