Concept Question 6-7: How does one determine the length $N + 1$ of the PSF for motion blur from the spectrum of the blurred image?

The PSF, hence the DSFT of the blurred image, is zero when $\Omega(N + 1)/2$ is an integer multiple of π. See Eqs. (6.49) and (6.47) below.

$$\mathbf{H}(\Omega_1, \Omega_2) = \text{DSFT}\{h[n,m]\}$$

$$= \text{DTFT}_{n \to \Omega_1} \left\{ \text{rect} \left[\frac{n - N/2}{N/2} \right] \right\}$$

$$\times \text{DTFT}_{m \to \Omega_2} \{\delta[m]\} \frac{T}{N}$$

$$= \frac{T}{N} \frac{\sin\left[\Omega_1 \left(\frac{N+1}{2}\right)\right]}{\sin(\Omega_1/2)} e^{-j\Omega_1 N/2}. \qquad (6.49)$$

$$h[n,m] = \text{rect}\left[\frac{n - N/2}{N/2}\right] \delta[m] \, \Delta_{\text{t}}. \qquad (6.47)$$