The continuous-time signal

\[ x_c(t) = \cos(4000\pi t) \]

is sampled with a sampling period \( T \) to obtain a discrete-time signal

\[ x[n] = \cos \left( \frac{\pi n}{3} \right) \]

(a) Determine a choice of \( T \) consistent with this information.

(b) Is your choice for \( T \) in part (a) unique? If so, explain why. If not, specify another choice of \( T \) consistent with this information.