Exercise 1 *Complete the following table. Use* ***exact*** *values.*

x	$\frac{1}{3}$	$\frac{-1}{30}$	$\frac{1}{300}$	$\frac{-1}{301}$	$\frac{1}{1000}$	$\frac{1}{1001}$	$\frac{1}{50000}$	$\frac{-1}{100004}$
$\frac{\pi}{x}$	3π	-30π	300π	-301π	1000π	1001π	50000π	-100004π
$\cos\left(\frac{\pi}{x}\right)$	$\boxed{-1}$	$\boxed{1}$	$\boxed{1}$	$\boxed{-1}$	$\boxed{1}$	$\boxed{-1}$	$\boxed{1}$	$\boxed{1}$

Exercise 1.1 *Based on the table above, make a conjecture about* $\lim_{x\to 0}\cos\left(\frac{\pi}{x}\right)$. *Does it exist? Explain.*

Free Response: *It seems like the limit does not exist.* $\cos\left(\frac{\pi}{x}\right)$ *doesn't seem to approach 1, -1, or any value in between even when* x *is very close to 0. It seems to oscillate in between.*