

$x$	$-\infty$	$\frac{1+\sqrt{1+4\times 10^k}}{2}$	$\frac{1}{2}$	$\frac{1-\sqrt{1+4\times 10^k}}{2}$	$+\infty$
$f'(x)$		$\begin{array}{c} \vdots \\ - \\ \downarrow \end{array}$	$\begin{array}{c} \vdots \\ 0 \\ \vdots \end{array}$	$\begin{array}{c} \vdots \\ + \\ \downarrow \end{array}$	
$f(x)$	$+\infty$	$10^k$		$10^k$	$+\infty$
		$\searrow$	$-\frac{1}{4}$	$\nearrow$	
$x$	$0$	$\frac{\pi}{2}$	$\pi$	$\frac{3\pi}{2}$	$2\pi$
$\cos(x)$	$1$	$\begin{array}{c} \vdots \\ 0 \\ \downarrow \end{array}$	$-1$	$\begin{array}{c} \vdots \\ 0 \\ \downarrow \end{array}$	$1$
	$\searrow$		$\nearrow$		