Convergence of Fourier Sine Series to $f(x)=1$ on interval $0<x<\pi$
$1 \cong \frac{4}{\pi} \sin (x)+\frac{4}{3 \pi} \sin (3 x)+\frac{4}{5 \pi} \sin (5 x)+\ldots$
sum of 1st two terms of series

sum of
1st three terms of series


