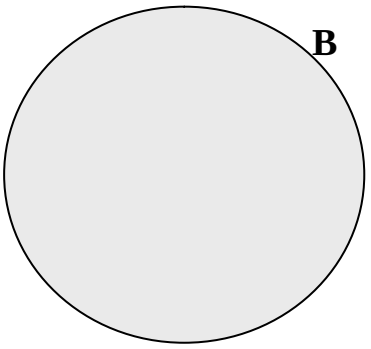
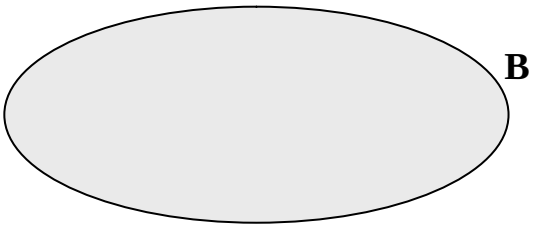
程式 75 Spectral properties of U, T, L and M operators

Continuous system	Discrete system
$\int_B U(s,x) f^U(s)\, dB(s) = l_U\, f^U(x)$,	$[U]\underset{\sim}{f}^U = l_U\, \underset{\sim}{f}^U$,
$\int_B T(s,x) f^T(s)\, dB(s) = l_T\, f^T(x)$,	$[T]\underset{\sim}{f}^T = l_T\, \underset{\sim}{f}^T$,
$\int_B L(s,x) f^L(s)\, dB(s) = l_L\, f^L(x)$,	$[L]\underset{\sim}{f}^L = l_L\, \underset{\sim}{f}^L$,
$\int_B M(s,x) f^M(s)\, dB(s) = l_M\, f^M(x)$,	$[M]\underset{\sim}{f}^M = l_M\, \underset{\sim}{f}^M$,

where B can be the boundary of circle or ellipse.
Find eigenvalue l and eigenfunction $f(x)$.



circle



ellipse