the max-norm of a B-spline

95/06/22: Cheney inquires about a formula for the max-norm of the cardinal B-spline, something he has been asked by his colleague, Jeremy Levesley, who has a contour integral for it. Cheney has an 8-line fortran program for it.

I tell him that ter Morsche [

[1] H. G. ter Morsche (1978), "The minimum supremum norm of a B-spline", T.H.-Report 78-WSK-05, Technological University Eindhoven.]has looked at that, as have [Meinardus, Günther, Morsche, Hennie ter, Walz, Guido; On the Chebyshev norm of polynomial B-splines; J. Approx. Theory; 82(1); 1995; 99–122;] and that I remember some explicit statements there concerning this max-norm in the cardinal case.

Of course, for large order, Sommerfeld's expression for $B_n(x/(2h))$ provides the formula
$$\|B_n\|_\infty \approx \sqrt{6/(\pi n)},$$
which gives the reasonable approximations, at $n = 10, 100, 400$,

$$0.43701937223683, \quad 0.13819765978853, \quad 0.06909882989427,$$

for
$$0.43041776895944, \quad 0.13799020407550, \quad 0.06907291282945.$$