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Potential numerical implementations of Green's functions analytically constructed for the Black-Scholes equation. Preliminary report.

In our earlier works summarized in [1], it has been shown that computer-friendly representations can analytically be obtained for Green's functions to a number of terminal-boundary-value problems stated for the Black-Scholes equation. For some problems, these representations might be expressed in a closed elementary functions-containing form making them perfectly suitable for immediate computing. For some other problem settings, their Green's function representations might have uniformly convergent trigonometric series-containing components, in which cases their computer use does not nevertheless become much more tedious. In the present study, we discuss a prospective for the development of efficient numerical schemes for solution of practical problem settings in financial mathematics that implement Green's functions a priori constructed by means of our recommendation.

[1] Yuri A. Melnikov and Max Y. Melnikov, *Green's Functions. Construction and Applications*, De Gruyter, Berlin-Boston, 2012. (Received August 23, 2015)