

Shooting Method:

$x = 0.0, y = 1.000000$
 $x = 0.1, y = 1.016634$
 $x = 0.2, y = 1.059210$
 $x = 0.3, y = 1.124314$
 $x = 0.4, y = 1.209024$
 $x = 0.5, y = 1.310524$
 $x = 0.6, y = 1.426232$
 $x = 0.7, y = 1.554455$
 $x = 0.8, y = 1.693764$
 $x = 0.9, y = 1.842715$
 $x = 1.0, y = 2.000000$

Finite-Difference Method:

$x = 0.0, y = 1.000000$
 $x = 0.1, y = 1.016532$
 $x = 0.2, y = 1.059102$
 $x = 0.3, y = 1.124251$
 $x = 0.4, y = 1.208890$
 $x = 0.5, y = 1.310313$
 $x = 0.6, y = 1.426194$
 $x = 0.7, y = 1.554570$
 $x = 0.8, y = 1.693822$
 $x = 0.9, y = 1.842642$
 $x = 1.0, y = 2.000000$

Variation Approach:

$x = 0.0, y = 1.000000$
 $x = 0.1, y = 1.062555$
 $x = 0.2, y = 1.127136$
 $x = 0.3, y = 1.195888$
 $x = 0.4, y = 1.271067$
 $x = 0.5, y = 1.355041$
 $x = 0.6, y = 1.450304$
 $x = 0.7, y = 1.559494$
 $x = 0.8, y = 1.685434$
 $x = 0.9, y = 1.831164$
 $x = 1.0, y = 2.000000$