**Exercise 6**

Show that

\[
\int_0^\infty \frac{dx}{\sqrt{x(x^2 + 1)}} = \frac{\pi}{\sqrt{2}}
\]

by integrating an appropriate branch of the multiple-valued function

\[
f(z) = \frac{z^{-1/2}}{z^2 + 1} = \frac{e((-1/2) \log z)}{z^2 + 1}
\]

over (a) the indented path in Fig. 101, Sec. 82; (b) the closed contour in Fig. 103, Sec. 84.