

Arfken, Weber, Harris, 7th Ed

14.6.1 (place a branch cut running from 0 to $-\infty$; why is the 2nd s.p. contribution negligible?)

6.1 Evaluate:

$$I(a) = \int dz (1+z^2) \exp[-a \cos(z)]$$

for $|a| \rightarrow +\infty$ and real for the two cases of $a > 0$ and $a < 0$. The integral runs from $-i\pi/2$ to $\pi/2$. [Examine the topography carefully and think about the PSDs.]

6.2 Evaluate: for $x \rightarrow +\infty$

$$I(x) = \int dt \exp[i x \cos(t)].$$

The integral runs from 0 to π . [Examine the topography carefully and think about the PSDs.]

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7.2.2

6.3 A mass, m , falls in gravity, g , in the presence of a drag force $mg(\alpha v)^2$, where $v(t)$ is the speed. Solve for $v(t)$ if $v(0) = 0$. Evaluate, from your solution, $v(t)$ for small times and for large times (terminal velocity). Define “small” times and “large” times.