Problem 14

Recall that \( \cos bt = \frac{e^{ibt} + e^{-ibt}}{2} \) and that \( \sin bt = \frac{e^{ibt} - e^{-ibt}}{2i} \). In each of Problems 11 through 14, find the Laplace transform of the given function; \( a \) and \( b \) are real constants. Assume that the necessary elementary integration formulas extend to this case.

\[
f(t) = e^{at} \cos bt
\]