“We have therefore the equation of condition

\[ F(x) = \int dqQ \cos qx \]

If we substituted for \( Q \) and function of \( q \), and conducted the integration from \( q = 0 \) to \( q = \infty \), we should find a function of \( x \): It is required to solve the inverse problem, that is to say, to ascertain what function of \( q \), after being substituted for \( Q \), gives as a result the function \( F(x) \), a remarkable problem whose solution demands attentive examination.”

J. Fourier

page 90: Problems 1, 2, and 3.
page 97: Problem 1
page 108: Problems 2, 3, 8, and 9.
page 113: Problems 1 and 7.