

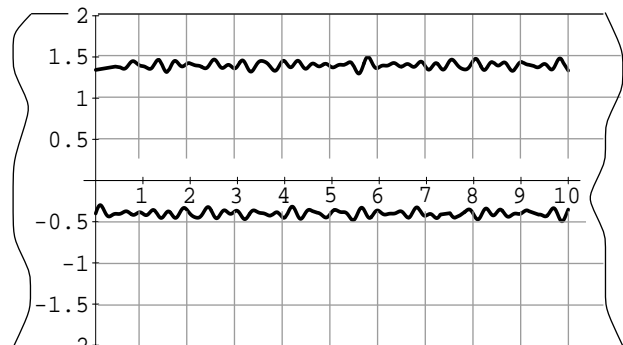
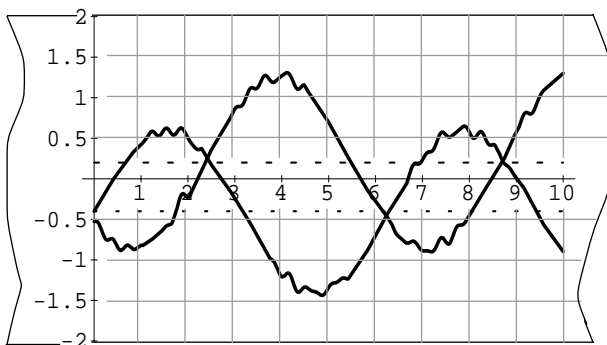
A Practical Problem

“... On a cloth untrue
With a twisted cue
And elliptical billiard balls” Gilbert and Sullivan, On Process Modelling

Your Thesis is due in a week. The experimental process equipment has been torn down. And you discover that you forgot to measure needed process properties. The relevant part of the process can be modelled with the transfer function:

$$Y(s) = \frac{k (X(s) - c)}{(s+a)(s+b)}$$

Physical reasoning establishes that $a > b$, and that k , a , and b are positive, finite, and real. You discover two scraps of recorder paper, recording X and Y as a function of seconds, but with variables unlabeled, as shown:



Save your Thesis by estimating a , b , c , k .