1. Determine the head loss, given the kind and size of pipe and the flow rate.
2. Determine the flow rate, given the head, kind, and size of pipe.
3. Determine the size of pipe needed to carry the flow, given the kind of pipe, head, and flow rate.

In the first type of problem, the Reynolds number and k_s/D are first computed and then f is read from Fig. 10.8, after which the head loss is obtained by the use of Eq. (10.22).

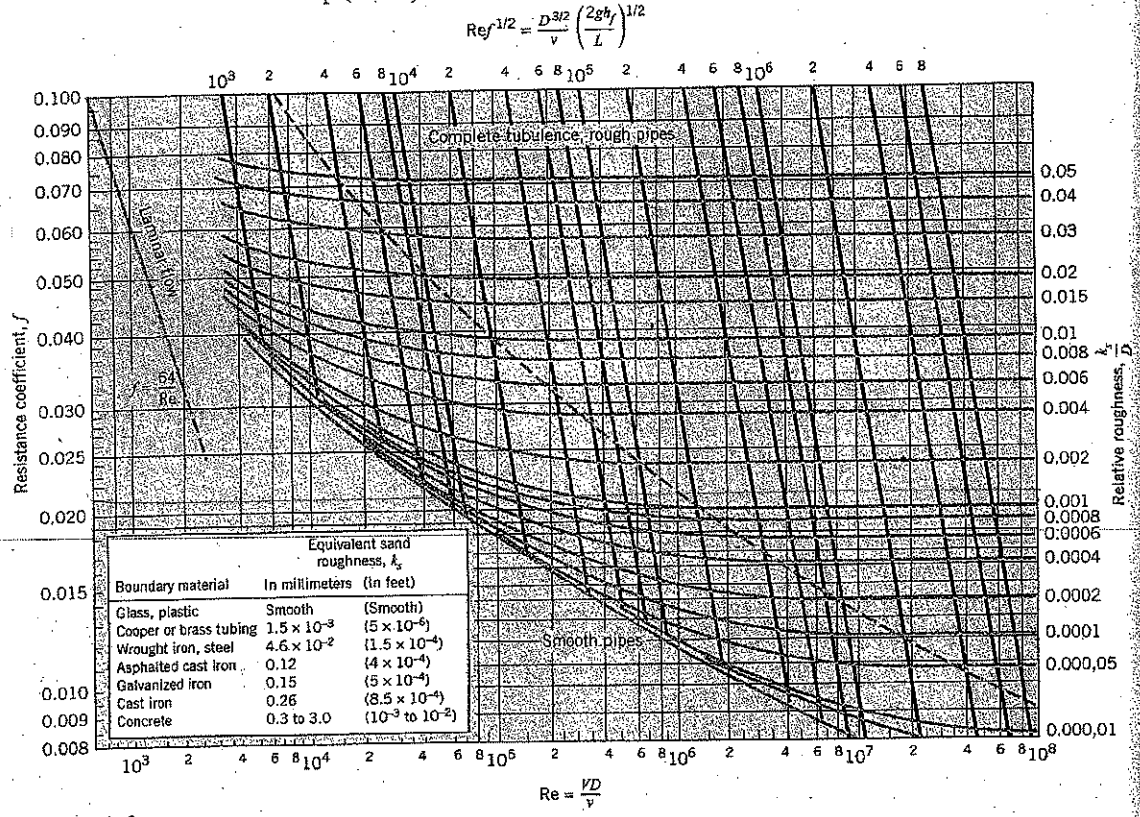

FIGURE 10.8

Resistance coefficient f *versus Re. Reprinted with minor variations. [After Moody (29). Reprinted with permission from the A.S.M.E.]*

FIGURE 10.9

Relative roughness for various kinds of pipe. [After Moody (29). Reprinted with permission from the A.S.M.E.]