



**Figure 8.8.** Use of special enzymes in genetic engineering. (a) The specific cutting of DNA by a restriction enzyme results in the formation of ends that contain small single-stranded complementary sequences ("sticky ends"). (b) The enzyme DNA ligase links pieces of DNA that have become associated by their sticky ends. (With permission, from T. D. Brock, K. M. Brock, and D. M. Ward, *Basic Microbiology with Applications*, 3d ed., Pearson Education, Upper Saddle River, NJ, 1986, p. 171.)

Obtaining good expression from the donor DNA is often a difficult challenge. Careful selection of stably propagating vectors and of promoters, checks to ensure that the correct reading frame is being used, and the selection of host cell backgrounds that do not interact unfavorably with the "foreign" protein are all important considerations. Discussions of how to obtain and maintain high levels of expression will occupy much of Chapter 14. We can screen for the expression of donor DNA, for example, if the product