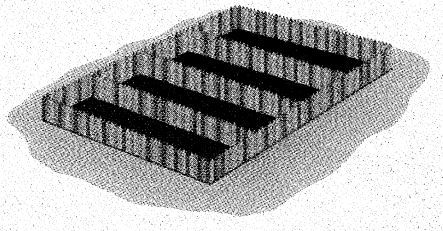
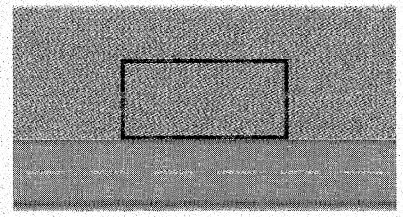
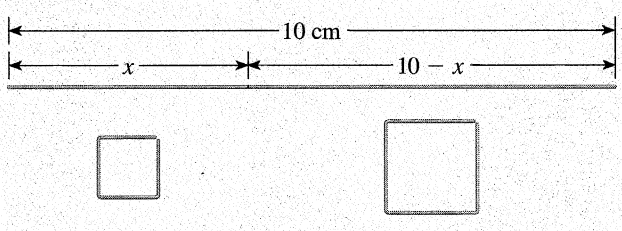
24. A rancher with 750 ft of fencing wants to enclose a rectangular area and then divide it into four pens with fencing parallel to one side of the rectangle (see the figure). What is the largest possible total area of the four pens?





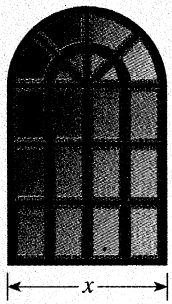
25. A property owner wants to fence a garden plot adjacent to a road, as shown in the figure. The fencing next to the road must be sturdier and costs \$5 per foot, while the other fencing costs just \$3 per foot. If the garden is to have an area of 600 ft^2, what dimensions should she choose to minimize the cost of the fence?

26. A wire 10 cm long is cut into two pieces, one of length x and the other of length $10 - x$, as shown in the figure. Each piece is bent into the shape of a square. What value of x minimizes the total area enclosed by the two squares?



27. A baseball team plays in a stadium that holds 55,000 spectators. With the ticket price set at \$10, the average attendance at recent games has been 27,000. A market survey indicates that for every dollar the ticket price is lowered, attendance increases by 3000. What ticket price maximizes revenue?

28. A student makes and sells necklaces at the beach during the summer months. The material for each necklace costs him \$6 and he sells an average of 20 per day at \$10 each. He's been wondering whether he should raise the price, so he conducts a survey and finds that for every dollar increase he loses two sales a day. What price should he set for the necklaces to maximize his profit?



29. A Norman window has the shape of a rectangle surmounted by a semicircle, as shown in the figure. If the perimeter of the window is 30 ft, find the dimensions of the window that admits the greatest possible amount of light.