by Benjamin Bloch, Ph.D.

1. Let x = each of the two sides of the lot, and y = the third side opposite the hotel wall.
   Then the total length of the fencing, L = 2x + y, and the enclosed area, A = xy = 12,800.
   Since y = 12,800/x, then L = 2x + 12,800/x
   To make L a minimum with respect to x, set dL/dx = 0
   Thus, $dL/dx = 2 - 12{,}800/x^2 = 0$, and solving that we get x = 80 ft.
   Then, y = 12,800/x = 12,800/80 = 160 ft.

2. The total length of the fence is L = 2x + y =160 +160 = 320 ft.