

8. (14 points) Adrian is decorating her apartment for the holidays. She plans to outline a fake window with fancy lights. The window is to be in the shape of a rectangle topped by a semicircle (see Figure below). The cost of the fancy lights for the circular portion of the window is \$25 per meter, and the cost of the regular lights for the straight edging is \$10 per meter. If the “window” has a total area of 1 m^2 , what are the dimensions that will minimize the cost of the lighted perimeter?

