

Section 4.7: Optimization Problems

Examples

EXAMPLE 1 A farmer has 2400 ft of fencing and wants to fence off a rectangular field that borders a straight river. He needs no fence along the river. What are the dimensions of the field that has the largest area?

EXAMPLE 2 A cylindrical can is to be made to hold 1 L of oil. Find the dimensions that will minimize the cost of the metal to manufacture the can.

- 20.** A box with an open top is to be constructed from a 4 ft by 3 ft rectangular piece of cardboard by cutting out squares or rectangles from each of the four corners, as shown in the figure, and bending up the sides. One of the longer sides of the box is to have a double layer of cardboard, which is obtained by folding the side twice. Find the largest volume that such a box can have.

