Box Problem Report

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2025-11-12

Plotting a Mathematical Function: Box Problem

Starting with a rectangular piece of paper, we can create an open-top box by cutting out equal squares from each of the four corners and folding up the sides. The size of the cut-out squares determines the dimensions and volume of the resulting box. We can explore how the volume changes with different square side lengths by plotting the volume as a function of the cut-out size.

Running Code

volumeOfBox <- function(x){ #In the problem description, we are asked to assume that we have a standard #sheet of letter paper: 8.5 inches by 11 inches.

volume = 0 LENGTH = 36 WIDTH = 48

volume <- x*(LENGTH-2*x)*(WIDTH-2*x)

if(runif(volume)<0){ return("Value of Side Length(x) is too large.") }

return(volume)

}