

Box Problem KEY

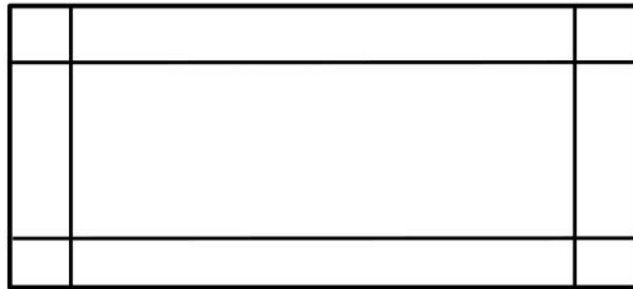
Thursday, October 8, 2015 3:40 PM

A large area of blue horizontal lines for writing, with a vertical red margin line on the left side.

The Box Problem

→ 15x12'

An open box is formed by cutting squares from the corners of a regular piece of cardboard (see diagram) and folding up the flaps. Remember... **Volume = length x width x height**

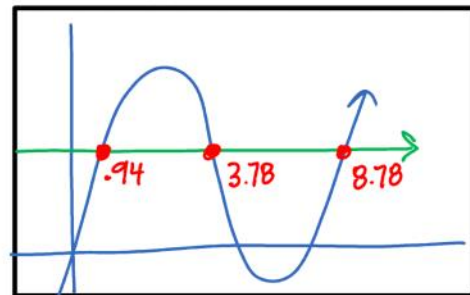


1. What size corner squares should be cut to yield a box with a volume equal to 125 cubic inches?

$$y = x(15 - 2x)(12 - 2x)$$

Window: X [0 , 15] Y [-30 , 100]

Answer: $x = .94, 3.78$

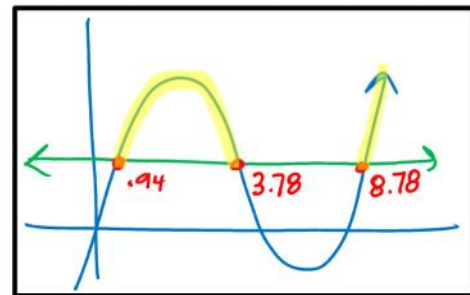


2. What size corners should be cut to yield a box with a volume more than 125 cubic inches?

$$y = x(15 - 2x)(12 - 2x)$$

Window: X [,] Y [,]

Answer: $(.94, 3.78)$



3. What size corner squares should be cut to yield a box with a volume of AT MOST 125 cubic inches?

$$y = x(15 - 2x)(12 - 2x)$$

Window: X [,] Y [,]

Answer: $(0, .94] \cup [3.78, 6)$

