Additional Optimization Practice

1. A cylindrical can is to hold 20π m.^{3} The material for the top and bottom costs \$10/m.^{2} and material for the side costs \$8/m.^{2} Find the cost of the least expensive can you can make.

2. A sheet of cardboard 3 ft. by 4 ft. will be made into a box by cutting equal-sized squares from each corner and folding up the four edges. Find the size of the square that will result in the largest volume ?

3. An open rectangular box with square base is to be made from 48 ft.^{2} of material. What dimensions will result in a box with the largest possible volume ?

Answers

1. C = $\$240\pi$ or about \$754

2. $x \approx 0.57$ ft. ,

3. 4 X 4 X 2