7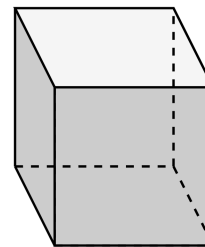. [9 points] Suppose 16 square feet of material is available to make a box with a square base and an open top. Find the side length of the base that maximizes the volume of the box.

Show all your work, include units, and <u>fully justify</u> using calculus that you have in fact found side length that maximizes volume.

Answer: side length of base = _____