

(10.) (11 points) You are designing a cylindrical bucket. The bucket must have a bottom, but it will have no lid, and you have 1000 square inches of steel sheet to use for the bucket.

If the radius of the bucket is r and the height is h , for what values of r and h does the bucket have maximum possible volume? What is this maximum volume? Show all your work, and clearly indicate your final answers below.

Optimal value of r = _____

Optimal value of h = _____

Maximum volume = _____