Example. We have a piece of cardboard that is 14 inches by 10 inches, and we are going to cut out the corners and fold up the sides to form a lidless box. Determine dimensions of the box that maximizes volume.

Example. A silo with a cylindrical base is being mounted with a hemisphere. The material to make the hemisphere costs \$30 per square meter. The material to make the cylindrical sidewall is \$10 per square meter. The silo should have a fixed volume of 5000 cubic meters. Find the dimensions of the silo that minimizes the cost to build it.