NAME_____ 17 November 2008

MATH 224 — QUIZ IX

The Chandra orbiting X-ray telescope has a "mirror" which is shaped like a large, curved ring of steel. That is, it can be described as the surface obtained by rotating the arc of the parabola $x = y^2$ (so $y = \sqrt{x}$) where x is in the interval $[1, 2]$ around the x-axis (units are meters). [You operate the telescope by pointing the positive x-axis in the desired direction, while the X-ray detector sits at the focus of the parabola.] What is the surface area of this mirror?