A company manufactures corrugated tin for roofing by taking a flat piece of tin and pressing it until it is wavy. In fact, it looks strikingly like a sine wave. If the company wants to produce corrogated pieces that are 10 feet wide, approximately how wide should the flat pieces be to begin with?

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For each three dimensional object described below,

(a) Sketch the object

(b) Set up an integral that gives you the volume of the object

(c) Evaluate the integral to find the volume

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1. The solid formed when the graph of $y = x^2 + 1$ from $x = 0$ to $x = 2$ is rotated about the x-axis.
2. The solid formed when the region bounded by $y = x^2$ and $y = 4$ is rotated about the x-axis.
3. The sphere of radius r.