1. In each case, approximate the length of the curve C within 0.001 of its actual value.
   (a) C is the graph of $y = \ln(x)$ from $x = 1$ to $x = 8$
   (b) C is the graph of $y = \sin(x)$ from $x = 0$ to $x = \pi$
   (c) C is the graph of $y = \sqrt{16 - x^2}$ from $x = 0$ to $x = 4$

2. 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?