

For each curve  $C$ ,

- (a) Set up the integral that gives the arc length of  $C$
- (b) Approximate the length of the curve  $C$  within 0.001 of its actual value
  1.  $C$  is the graph of  $y = \ln(x)$  from  $x = 1$  to  $x = 8$
  2.  $C$  is the graph of  $y = \sin(x)$  from  $x = 0$  to  $x = \pi$
  3.  $C$  is the graph of  $y = \sqrt{16 - x^2}$  from  $x = 0$  to  $x = 4$