Math 199 CD2: Reviewing Volume

January 20, 2022

1. Set up an integral for the volume of the solid obtained by rotating the region bounded by the given curves about the specified line.

   (a) $y = e^{-x^2}$, $y = 0$, $-1 \leq x \leq 1$

      i. Around the x-axis

      ii. Around $y = -1$

   (b) $y = \cos^2 x$, $y = 0$, $-\pi/2 \leq x \leq \pi/2$

      i. Around the x-axis

      ii. Around $y = 1$

   (c) $x^2 + 4y^2 = 4$

      i. Around $y = 2$

ii. Around $x = 2$

(d) $y = x^2, x^2 + y^2 = 1, y \geq 0$

i. Around x-axis

ii. Around y-axis