

Find the volume of each three dimensional object described below. If you cannot find the volume exactly, approximate the volume accurate with 0.001 of its value.

1. The solid formed when the region bounded by $y = \sin(x^2)$ and the x -axis for $0 \leq x \leq \sqrt{\pi}$ is rotated about the y -axis
2. The solid formed when the region bounded by by the parabola $y = -x^2 + 8x - 15$ and the x -axis is rotated about the line $x = 1$
3. The solid formed when the region bounded by by the parabola $y = -x^2 + 8x - 15$ and the x -axis is rotated about the line $x = -2$
4. The solid formed when the region from #1 is rotated about the line $x = -1$