

Quiz 8 will cover the following material: (all handouts posted on the web site so far)

1. All material for Quizzes 1-7 and Exam 1
2. Computing volumes cylindrical shells.
3. Computing the length of an arc.
4. (as BONUS) Computing surface area of a rotational object.

Sample Quiz 8

1. Compute the arc length of the graph
 - a) $y = \cosh x$ between $x = 0$ and $x = \ln 12$
 - b) $y = \frac{x^4}{8} + \frac{1}{4x^2}$ between $x = 1$ and $x = 2$.
2. Suppose that $m > 0$. Let R be the region between $y = mx$ and $y = mx^2$ between $x = 0$ and $x = 1$. Compute the value of m if we know that $V_x = V_y$ where V_x is the volume of the object we obtain by rotating R about the x -axis and V_y is the volume of the object we obtain by rotating R about the y -axis.
3. Let R be the region bounded by the ellipse $\frac{x^2}{4} + \frac{y^2}{9} = 1$ and the x -axis. Compute the volume of the object we obtain when rotating R
 - a) about the x -axis.
 - b) about the line $x = 7$.

Answers

- 1.) a) $\frac{143}{24}$ b) $\frac{33}{16}$ 2.) $m = \frac{5}{4}$ 3.) a) 24π b) $42\pi^2$