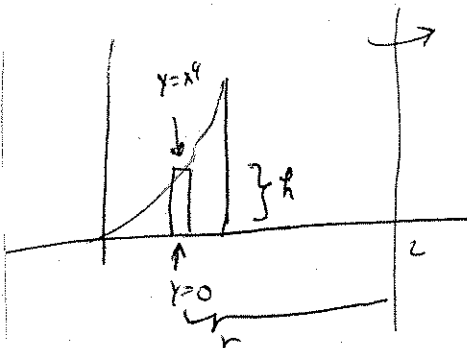


Quiz 6 — September 29, 2010 — Section 10 — 11:15 — 12:05

Circle your answer. Show your work.

The quiz is worth 5 points.

Consider the region in the xy -plane bounded by $y = x^4$, $y = 0$, and $x = 1$. Revolve this region about the line $x = 2$. Find the volume of the resulting solid.



spin the rectangle. Get a shell of volume $2\pi rh\epsilon = 2\pi(2-x)(x^4-0)dx$

The volume of the solid is

$$2\pi \int_0^1 2x^4 - x^5 dx = 2\pi \left(\frac{2x^5}{5} - \frac{x^6}{6} \right) \Big|_0^1 = 2\pi \left(\frac{2}{5} - \frac{1}{6} \right)$$

$$= \frac{\pi}{15} (12 - 5)$$

$$= \boxed{\frac{7\pi}{15}}$$