

AP Calculus AB

Monday, April 8, 2013

Yes, a student may leave  $6\cos(9)$  or  $1+1$ , or  $\sin(\pi/6)$  or  $37(4) + 30(3) + 28(5) + 28(4)$  as from a Riemann sum. Once it's all numbers students should stop. If they have the correct answer and change it incorrectly to a decimal they will lose the point they already earned.

IMHO: The only time answer should be given as a decimal is when it came from a calculator by, say, solving an equation, finding a derivative or evaluating a definite integral.

Present two multiple choice review problems

Volume of Solids

MMM #34

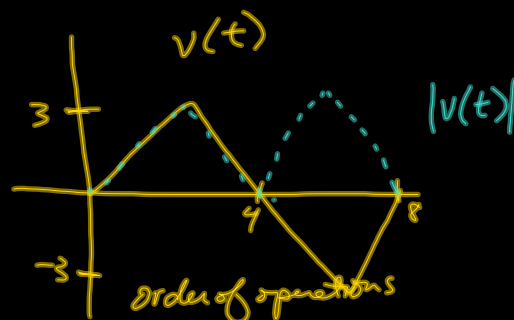
Discuss problem from test regarding average velocity (speed).

$$\int_0^1 x^2 dx = \frac{x^3}{3} \Big|_0^1 = \left( \frac{1^3}{3} - \frac{0^3}{3} \right)$$

$$\int_{-2}^2 f(x) dx = (x^3 + x^2) \Big|_{-2}^2 = 2^3 + 2^2 - \left( (-2)^3 + (-2)^2 \right) \\ = 2^3 + 2^2 - (-2^3 + 2^2)$$

$$(-2)^3 = -2 \cdot -2 \cdot -2 = -8$$

$$-2^3 = -1 \cdot 2 \cdot 2 \cdot 2 = -8$$



Find the exact volume of a cylinder with a height of 5cm and a radius of 2cm.



$$V = \pi r^2 h$$

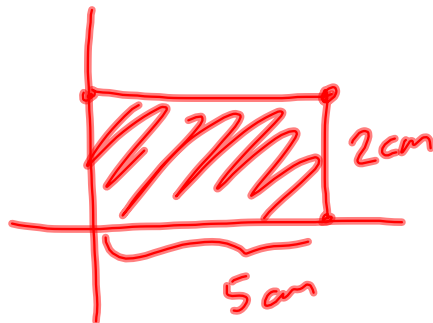
$$V = \pi \cdot 2^2 \cdot 5$$

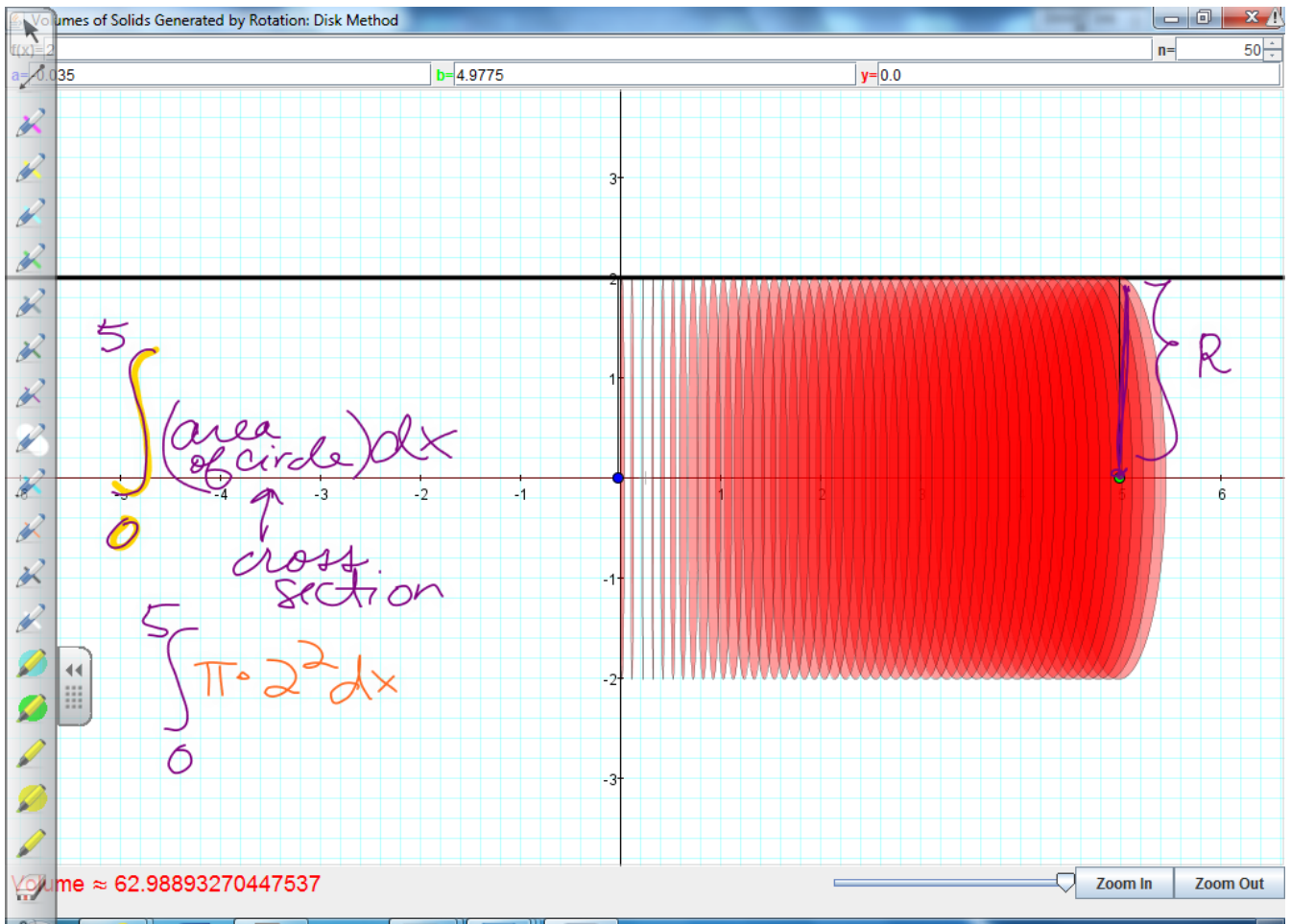
How can we model a cylinder with a rotation?

$$V = 20\pi \text{ cm}^3$$

<http://www.math.psu.edu/dlittl/java/calculus/index.html>

What 2D figure can we rotate to form a cylinder?





$$\pi \int_0^5 4 dx$$

$$= \pi (4x) \Big|_0^5$$

$$= \pi \cdot 4 \cdot 5 - \pi \cdot 4 \cdot 0$$

$$= 20\pi$$

