

October 23

Why did we have apples and cheese in class yesterday?



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Students will verbally explain how to find the volume by slicing
(using the words:
cross-section, area, dimensions, slice...)

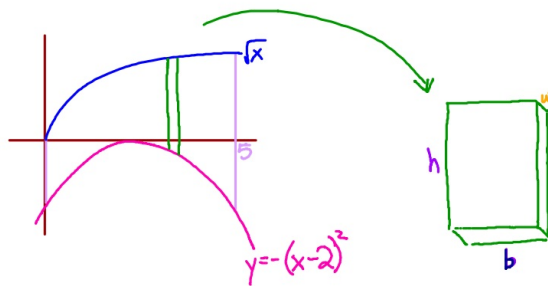


The base of a solid lies between the curves

$$y = \sqrt{x}, y = -(x-2)^2, x = 0 \text{ and } x = 5$$

the cross-sections perpendicular to the x-axis are

rectangles with the base equal to 2 times the height



$$b = 2h$$

$$h = \sqrt{x} - (-(x-2)^2)$$

$$h = \sqrt{x} + (x-2)^2$$

$$b = 2(\sqrt{x} + (x-2)^2)$$

$$w = dx$$

$$A = bh = 2(\sqrt{x} + (x-2)^2)(\sqrt{x} + (x-2)^2)$$

$$A = 2(\sqrt{x} + (x-2)^2)^2$$

$$V = \int_0^5 2(\sqrt{x} + (x-2)^2)^2 dx = 215.924$$

The base of a solid lies between the curves

$$y = \cos x \text{ and } y = x^2 - 4$$

$$y = x^2 - 4$$

the cross-sections perpendicular to the x-axis are

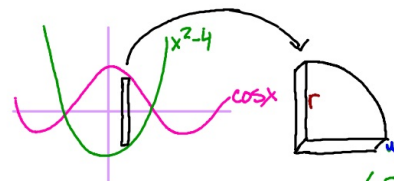
quarter-circles

bounds:

$$\cos x = x^2 - 4$$

$$x = 1.914$$

$$x = -1.914$$



$$r = \cos x - (x^2 - 4)$$

$$w = dx$$

$$A = \frac{1}{4} \pi r^2 = \frac{1}{4} \pi (\cos x - x^2 + 4)^2$$

$$V = \int_{-1.914}^{1.914} \frac{1}{4} \pi (\cos x - x^2 + 4)^2 dx = 39.016$$

The base of a solid
~~base~~ is bound by $x = y^2$
 and $x = 2y + 2$
 the cross-sections
perpendicular to the
y-axis are rectangles
 with height equal to
 $4y$

