

Good afternoon: no warm up, passing back 1998 AP tests
correct answers marked with arrows

Look it over and have 3-4 questions ready to ask about

Reminders: AP review packet due Wednesday; assessment is also then

71

$$V = \int_{-1}^2 (2 + x - x^2)^2 dx$$

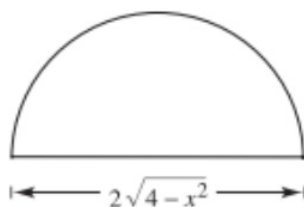
a. 8.1

72.

$$(c) \quad A(x) = \frac{1}{2}\pi r^2 = \frac{\pi}{2}(\sqrt{4-x^2})^2 = \frac{\pi}{2}(4-x^2)$$

$$V = \frac{\pi}{2} \int_{-2}^2 (4-x^2) dx$$

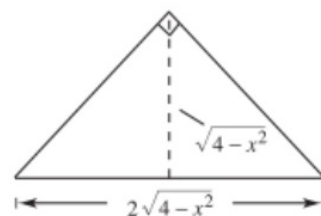
$$= \frac{\pi}{2} \left[4x - \frac{x^3}{3} \right]_{-2}^2 = \frac{16\pi}{3}$$



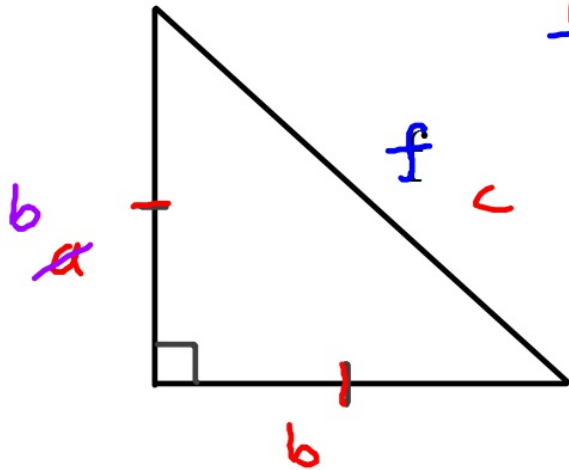
$$d) \quad A(x) = \frac{1}{2}bh = \frac{1}{2}(2\sqrt{4-x^2})(\sqrt{4-x^2}) = 4-x^2$$

$$V = \int_{-2}^2 (4-x^2) dx$$

$$= \left[4x - \frac{x^3}{3} \right]_{-2}^2 = \frac{32}{3}$$



Area of triangle?



$$A = \frac{1}{2} b \cdot h = \frac{1}{2} b^2$$

$$\frac{1}{2} \left(\frac{\sqrt{2} f}{2} \right)^2$$

$$\frac{1}{2} \left(\frac{2 f^2}{4} \right) = \frac{f^2}{4}$$

rationalized

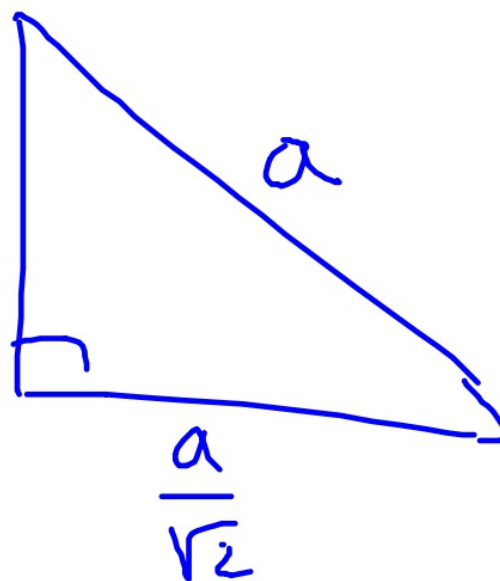
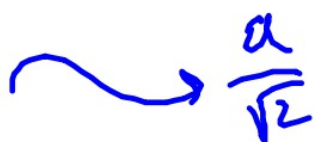
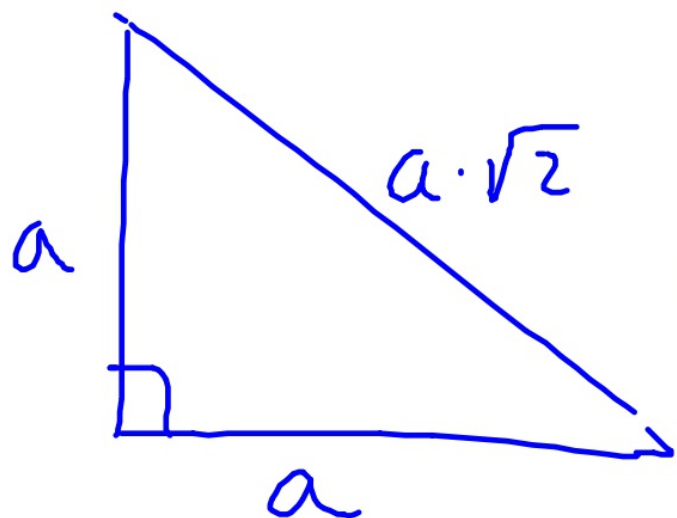
$$a^2 + b^2 = c^2$$

$$b^2 + b^2 = f^2$$

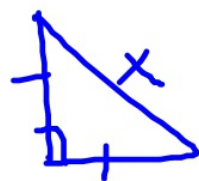
$$2b^2 = f^2$$

$$\sqrt{b^2} = \sqrt{\frac{f^2}{2}}$$

$$b = \sqrt{\frac{f^2}{2}} = \frac{\sqrt{f^2}}{\sqrt{2}} = \frac{f}{\sqrt{2}} = \frac{\sqrt{2} f}{2}$$

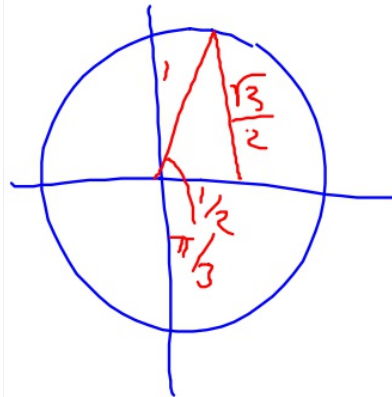
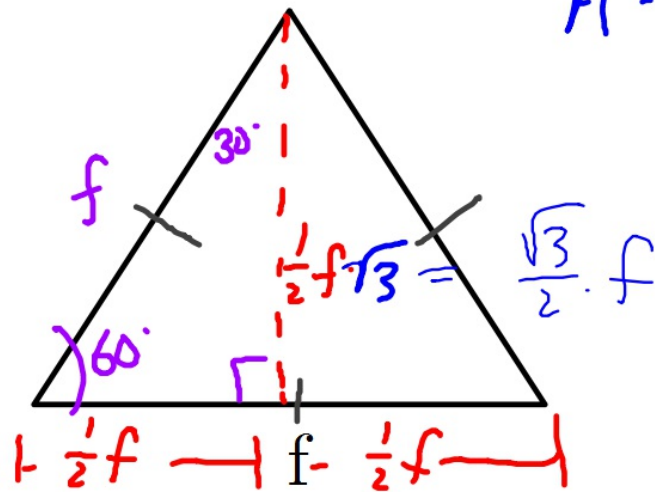


$$A = \frac{1}{2} \cdot \frac{a}{\sqrt{2}} \cdot \frac{a}{\sqrt{2}} = \frac{a^2}{4}$$



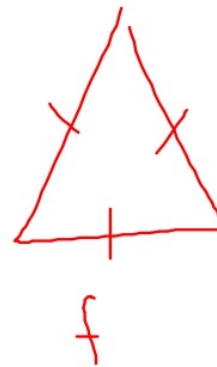
$$A = \frac{x^2}{4}$$

Area of triangle?



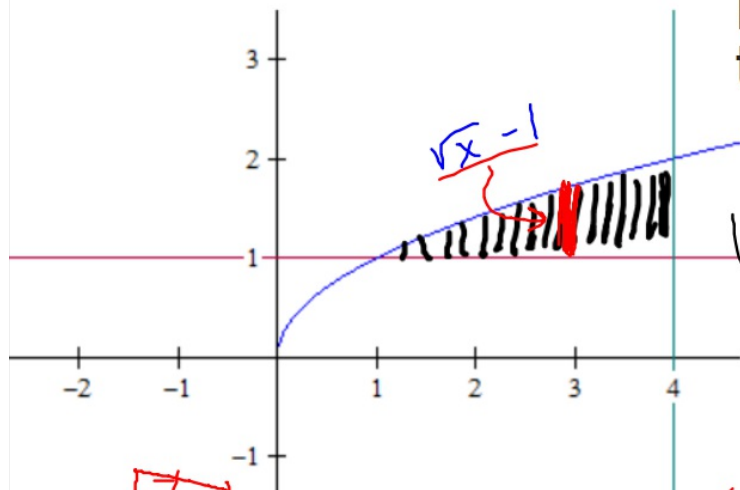
$$A = \frac{1}{2} \cdot f \cdot \boxed{?} = \frac{1}{2} \cdot f \cdot \frac{\sqrt{3}}{2} \cdot f$$

$$A = \frac{\sqrt{3}}{4} \cdot f^2$$



The region R is bound by $y=\sqrt{x}$, $y=1$, and $x=4$.

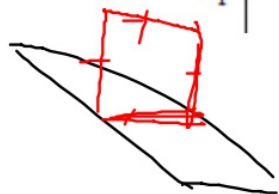
R is the base of a solid whose cross sections perpendicular to the x -axis are isosceles right triangles with hypotenuses in the plane of r .



$$V = \int_1^4 A(x) dx \rightarrow \int_1^4 \frac{(\sqrt{x}-1)^2}{4} dx$$

$$A(x) = \frac{(\sqrt{x}-1)^2}{4}$$

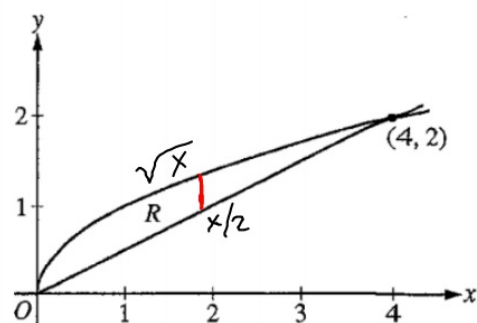
=



Revisiting this:

Find volume of solid with base R and cross sections perpendicular to R are

- a. Squares
- * b. Semicircles

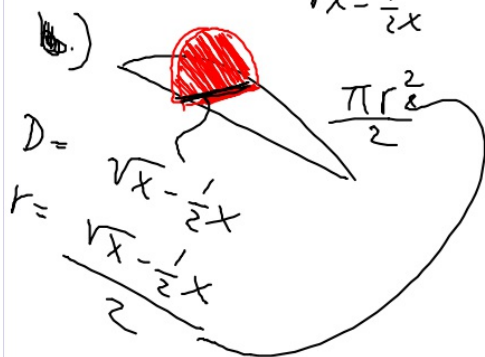


$y = \sqrt{x}$ a.)
 $y = x/2$



$$A(x) = \left(\sqrt{x} - \frac{1}{2}x \right)^2 dx$$

$$= 0.533 = \left(\frac{8}{15} \right)$$



$$A(x) = \frac{\pi}{2} \left(\frac{\sqrt{x} - \frac{1}{2}x}{2} \right)^2 \rightarrow \frac{\pi}{2} \left(\frac{1}{4} \right) \left(\sqrt{x} - \frac{1}{2}x \right)^2$$

$$\frac{\pi}{8} \left(\sqrt{x} - \frac{1}{2}x \right)^2$$

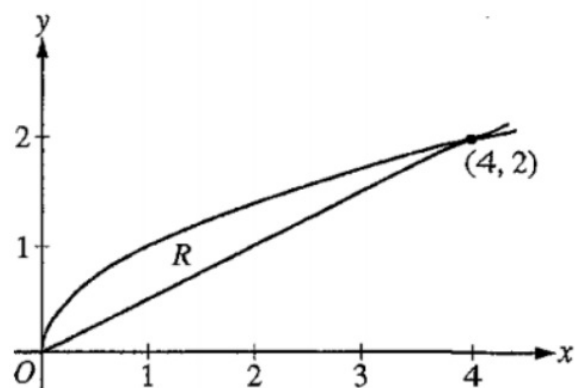
$$V = \int_0^4 \frac{\pi}{8} \left(\sqrt{x} - \frac{1}{2}x \right)^2 dx$$

$$\frac{\pi}{8} \int_0^4 \left(\sqrt{x} - \frac{1}{2}x \right)^2 dx$$

$$\leftarrow \frac{\pi}{8} \cdot \frac{8}{15} \text{ (from \#a)}$$

$$\left(\frac{\pi}{15} \right)$$

Revisiting this:



$$y = \sqrt{x}$$

$$y = x/2$$

Find volume of solid with base R and cross sections perpendicular to R are equilateral triangles.

Can U Pump It Up??

- Work in pairs (~~group of 3~~)
- Do your problem-set's work neatly in notebooks
 - although the AP test does not require it, include a sketch of the solid!
show off those art skills
- Check with me to see if you're right :)
- Copy to chart paper, including problem statement

Doing the other groups' problems will be your practice assessment!

Pictures of the charts will be posted to mcalc.weebly.com as a solution guide

Homework:

- Do the other AP volume problems, check solutions online
- finish the AP review packet passed out on Monday