

PRINT Your Name: _____

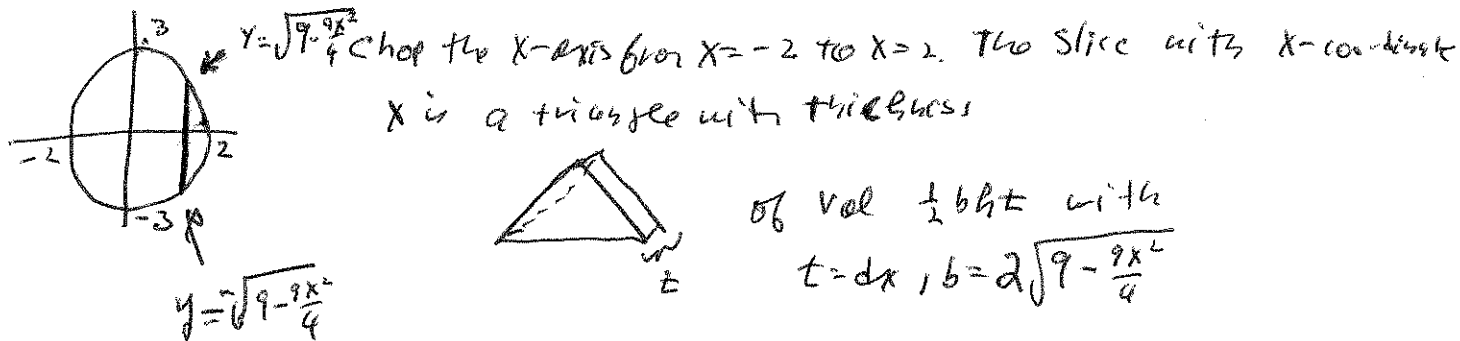
Quiz 6 — October 3, 2012 — Section 9 — 10:10 — 11:00

Remove everything from your desk except a pencil or pen.

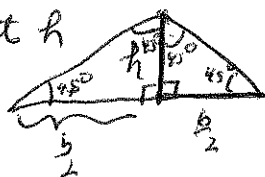
Circle your answer. Show your work. Your work should be correct and coherent. Draw a meaningful picture.

The quiz is worth 5 points.

Consider a solid S . The base of S is an elliptical region with boundary curve $9x^2 + 4y^2 = 36$. Cross-sections of S perpendicular to the x -axis are isosceles right triangles with hypotenuse in the base. Find the volume of S .



Draw a further picture to calculate h



so $h = \frac{b}{2}$

the vol of the slice is $\frac{1}{2} b \frac{b}{2} t = \frac{1}{4} (9 - \frac{9x^2}{4}) dx = 9 (1 - \frac{x^2}{4})$

The vol of the solid is $9 \int_{-2}^2 (1 - \frac{x^2}{4}) dx = 9 \left(x - \frac{x^3}{12} \right) \Big|_{-2}^2$

$= 9 \left(2 - \frac{8}{12} \right) (2) = 9 \left(2 - \frac{2}{3} \right) = 9 \left(\frac{4}{3} \right) = 12$