

Advanced Challenge Level 2 Problem #15

Consider the curve $y = 9 - x^2$ and points $A(0, 9)$ and $B(3, 0)$ on this curve. You must do each of the following.

- a. Find the x and y coordinates of the point on the curve where the tangent line is parallel to chord AB .
- b. Find the area of the region, R , enclosed by the curve and chord AB .
- c. Find the volume of the solid generated when the region R is revolved about the x -axis.

Show all of your work, including an appropriate graph, neatly organized with correct notation. Express irrational answers rounded to three significant digits.