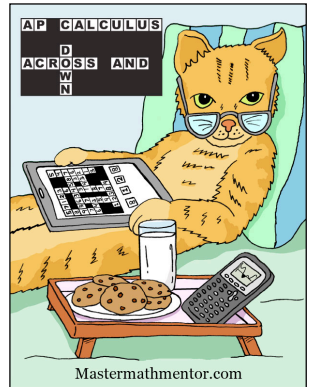


AP Calculus – Across and Down

Clue Set: #22

Topic: Volume

Only digits (0 – 9) and negative signs are allowed. If an answer is an integer, use leading zeros to make the answer fit. (Ex: If 4 digits are required and your answer is 46, enter 0046.) If an answer has decimal places, the decimal point is dropped and trailing zeros are used to make the answer fit to the required number of decimal places which is specified in the problem. (Ex: If 2 decimal places are required and your answer is 12.4682, round to 12.47 and enter 1247. If one decimal place is required and your answer is 15, write 15.0 and enter 150. If one decimal place is required and your answer is 0.5, write 05.)



Down

- D1. **(Gr. Calc.)** Find the volume to the nearest integer if the area between the positive y -axis and the curves $f(x) = 24 - x^2$ and $g(x) = 2x$ is rotated about the x -axis.
- D15. **(Sci. Calc.)** The first-quadrant area between the curves $y = 17 \cos x$, $y = 17 \sin x$, and the y -axis is the base of a solid whose cross-sections perpendicular to the x -axis are squares. Find the volume of the solid.
- D53. The area between the curve $y = \frac{10}{x}$, $x = 5$, the x -axis, and the line $x = k$ where $k > 5$, is the base of a solid with cross sections perpendicular to the x -axis creating right isosceles triangles (the distance from the x -axis to the curve is the leg of the triangle). Find the value of k if this volume is 7.5.
- D56. **(Sci. Calc.)** The first-quadrant area between the curve $y = 5 + \sqrt{x}$ and the x -axis is rotated about the x -axis to create a solid. How fast is the volume of this solid changing when $x = 4$ and x is changing at the rate of 6 units per second (2 decimal place accuracy)?