

WARM UP - No Calculator

1. Let R be the region enclosed by the lines $x = 0$, $x = 2$, $y = e^x$ and $y = x - 2$. Find the volume generated by rotating R around the line $y = -2$.

2.

If f is the function given by $f(x) = \int_4^{2x} \sqrt{t^2 - t} dt$, then $f'(2) =$

- (A) 0 (B) $\frac{7}{2\sqrt{12}}$ (C) $\sqrt{2}$ (D) $\sqrt{12}$ (E) $2\sqrt{12}$

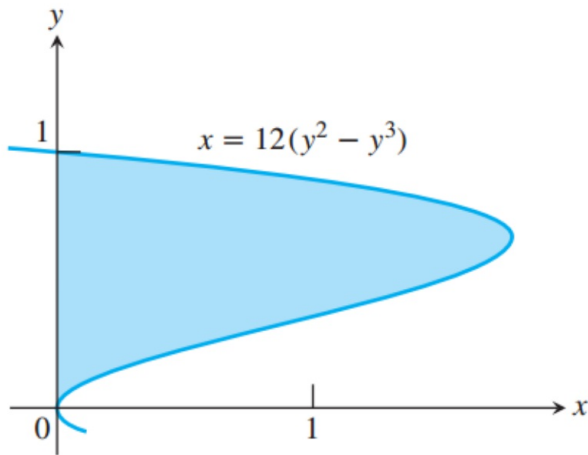
Volume of Revolutions Shell Method Day Two

Objective: Find volume of a solid generated by using the shell method around an axis that is not the x or y - axis.

Ex. 1: Find the volume enclosed by the graphs $y = -x^2 + 7$ and $y = x^2 + 5$ rotated around the line $x = 2$. (No calc)

Ex.2: Let R be the region in the first quadrant bounded by the graph of $y = 3x - x^2$ and the x -axis. Find the volume if R is revolved about the vertical line $x = -1$. (No calc)

Ex.3: Find the volume generated by rotating the shaded region around the line $y = 3$. (Set up only)



Ex.4: Let R be the region bounded by the curves $y = x^2 + 1$ and $y = x$ for $0 \leq x \leq 2$. Find the volume of the solid obtained by rotating the region R around the line $x = -2$.