

Math 141

Exam 1

February 9, 2016

#1-8:12 pts each, #9: 4 pts.

name _____

*no calculators

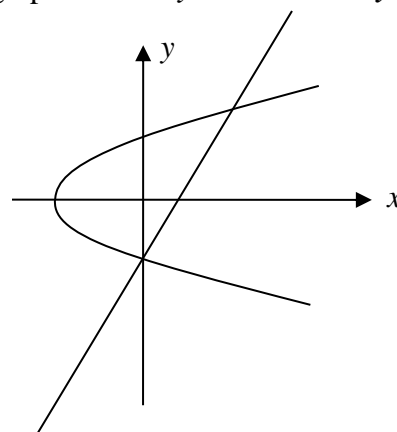
*show all relevant work to receive full credit

*any evidence of academic dishonesty = 0 grade

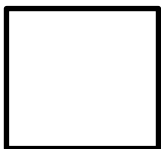
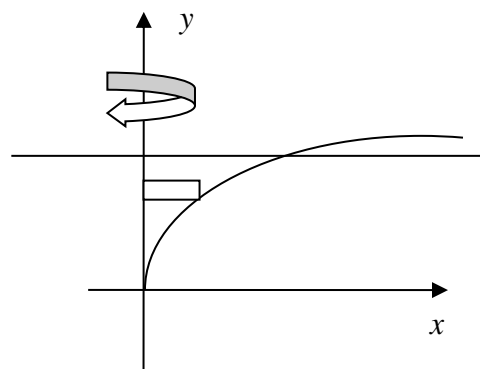
*only pencils, pens = - 5 from grade

*late for exam = - 5 from grade

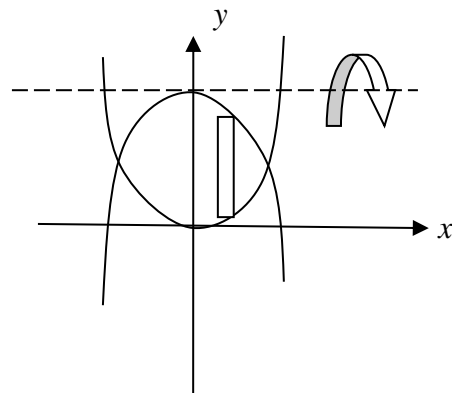
1. **SET UP** the integral(s) to find the area of the region bounded by the graphs of $x = y^2 - 1$ and $x = y + 1$



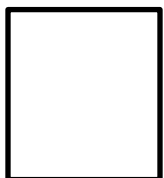
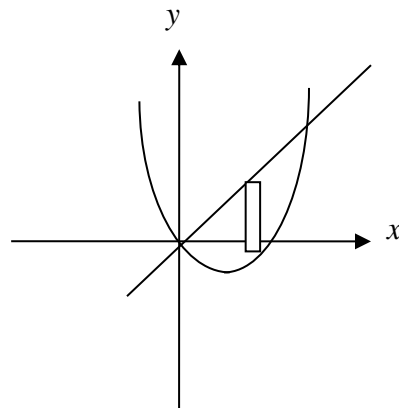
2. **SET UP** the integral(s) to find the volume of the solid generated by rotating the region bounded by the graphs of $y = \sqrt{x}$, $x = 0$ and $y = 2$ about the y -axis using **horizontal rectangles**.



3. **SET UP** the integral(s) to find the volume of the solid generated by rotating the region bounded by the graphs of $y = 2 - x^2$ and $y = x^2$ about the line $y = 2$ using **vertical rectangles**.

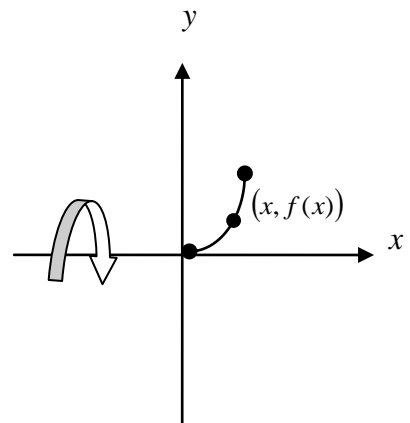


4. **SET UP** the integral(s) to find the volume of the solid with square cross-sections taken perpendicular to the x -axis whose base is bounded by the graphs of $y = x^2 - x$ and $y = x$.

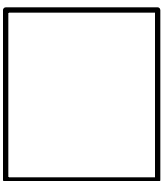


5. **SET UP** the integral to find the **area** of the surface formed by rotating the graph of the curve

$f(x) = x^2$ over $[0, 2]$ about the x -axis.



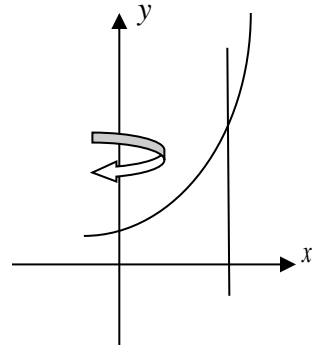
6. Find the indefinite integral: $\int x \ln x \, dx$



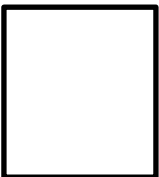
7. **FIND** , (don't just set it up), the volume of the solid, if the region bounded by the graphs of

$y = e^{2x}$, $x = 0$, $y = 0$, and $x = 1$ is rotated about the y-axis .

Name/indicate the method of your choice: _____



8. Find the indefinite integral. $\int \sin^9 x \cdot \cos^3 x \, dx$



9. 4 points: Any plans for Valentine's Day? _____