Math 1920 Excellent Practice Exam 2
Professor: Jonathan Lamb

Please work all the following problems IN ORDER on other paper. Circle final answers. Please show all work for credit.

1. $\int x\sqrt[3]{4x^2-5}\,dx$

2. $\int\left(2x(3+x)^7\right)dx$

3. $\int\left(\frac{-\sec^2 x}{\tan x+4}\right)dx$

4. $\int_{\pi/6}^{\pi/4}\cos^3 x\sin x\,dx$

5. $\int_{-4}^{2}\frac{t+1}{t+7}dt$

6. $\int_{1}^{6}\sqrt{x+3}\,dx$

7. $\int 5^{2x-1}e^{2x}dx$

8. $\int\left(\frac{3}{9+4x^2}\right)dx$

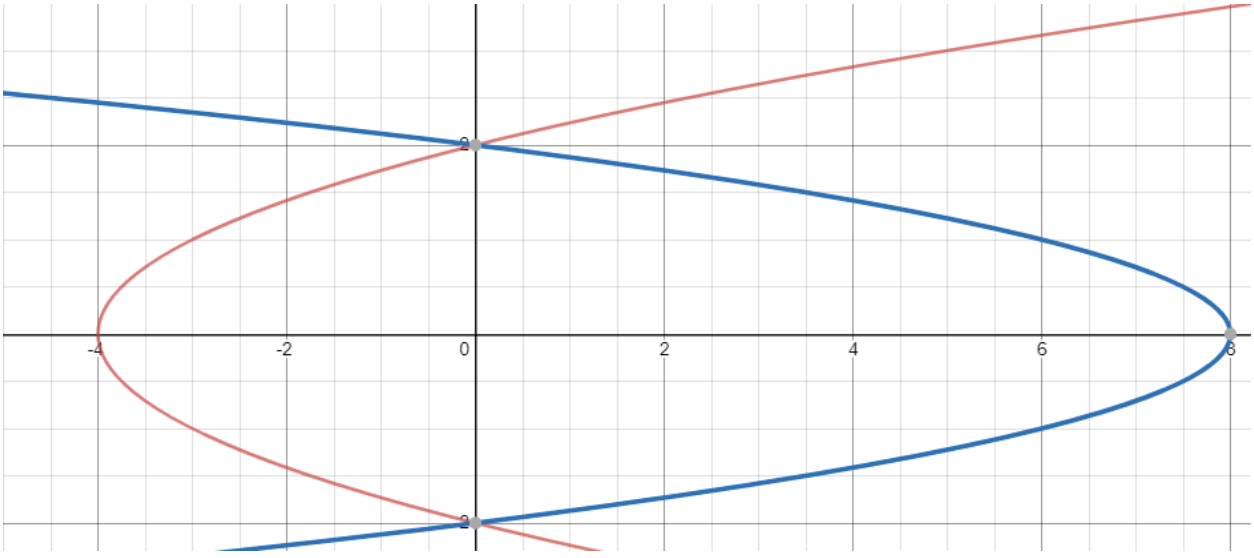
9. $\int\frac{dx}{\sqrt{25-16x^2}}$

10. $\int\frac{dx}{3|x|\sqrt{25x^2-1}}$

11. $\int\frac{(2-3x)dx}{x^2+16}$

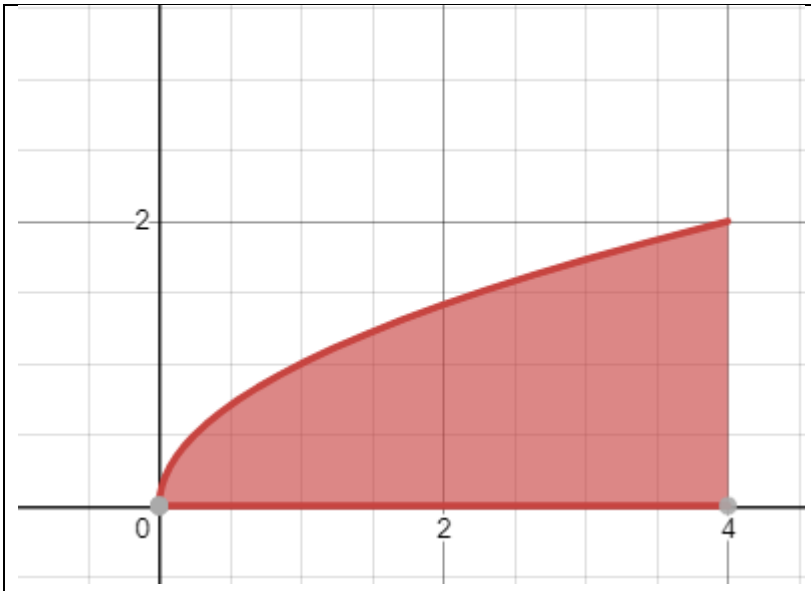
12. Find the area enclosed between $y=\sin x,\ y=-1,\ x=0,\ and\ x=\frac{\pi}{2}$.

13. Find the area enclosed between the curves $y^2=x+4$ and $8-x=2y^2$ displayed below.



14. Find the average value of $y = \frac{4}{x^3}$ on $x = [4,9]$. Then find the value(s) of x such that $f(x)$ is the average value.

For problems 15-18 the region bounded by the x-axis and the curve $y = \sqrt{x}$ is bounded from x = 0 till x = 4. Find the volume of the solid of revolution of this region pictured below when it is revolved about the axis of revolution in each of the problems 15-18.



15. Rotate region about x-axis

16. Rotate region about y = -2

17. Rotate region about y-axis

18. Rotate region about x = 8