

Math 150 Practice Test 7

1. Find the area bounded by the curves $x = 3y$ and $x = y^2 + 2$
2. Compute the volume of the solid formed by revolving the region enclosed by $y = x^2$, $y=1$ and $x=2$ about the y -axis.
3. A church steeple is 30 feet tall with square cross sections. The square at the base has sides 3 feet, and the square at the top has side 6 inches, and the side varies linearly in between. Find the volume of the steeple.
4. Use cylindrical shells to find the volume of the solid generated when the region enclosed by $y = x^3$, $y=1$ and $x=0$ is revolved about the line $y = 1$.
5. Find the arclength of $y = \frac{1}{3}(x^2 + 2)^{\frac{3}{2}}$ from $x=0$ to $x=3$.
6. Find the area of the surface generated by revolving the region enclosed by $x = \sqrt[3]{y}$, $1 \leq y \leq 8$ about the x -axis.
7. Solve for x :
 - a. $\ln\left(\frac{1}{x}\right) = -2$
 - b. $e^x - 2e^{-x} = 1$
8. Find the domain of $f(x) = \ln|3x - 5|$.