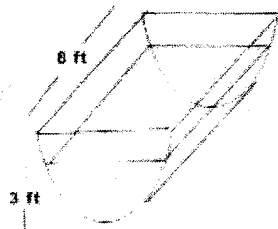


E. $\int \frac{1}{\sec x \sqrt{1 - 9 \sin^2 x}} dx$

F. $\int x 3^{x^2} dx$

8. A trough 8 feet long has ends in the shape of the region bounded by $y = x^2$ and $y = 4$. The trough is filled with water (density = 62.5 lbs/ft^3) to a depth of 3 feet. Set up, but do *not* evaluate, an integral that represents the work required to pump all of the water out of the tank to a collector 2 feet above the top of the tank. (12 points)



9. Find the average value of $f(x) = 2 \cos x$ on the interval $[0, \pi/2]$. (8 points)