

Bonus Homework for §8.3 Calculus 2 2/11/2005

Each problem is worth zero points, but there is a chance you'll learn some math.

1. Find the x coordinate of the center of mass of the region bounded by $y = 9 - x^2$ and the x axis (think first about what it should be).
2. Find the y coordinate of the center of mass of the region bounded by $y = 9 - x^2$ and the x axis.
3. Find the x coordinate of the center of mass of the right-hand portion of the region bounded by $y = x^3$ and $y = x$.
4. Find the x coordinate of the center of mass of the region between $y = x^3$ and the line tangent to it at $(1,1)$.
5. Find the x coordinate of the center of mass of the portion of the circle $x^2 + y^2 = 4$ which lies to the right of the line $x = 1$.
6. Find the x coordinate of the center of mass of the region bounded between $y = 1/x$, $y = 1/x^2$, and $x = 2$.
7. Find the x coordinate of the center of mass of the region between $x = 5y - y^2$ and $y = x$.
8. The curves $y = \sin x$ and $y = \cos x$ intersect infinitely many times. Find the x coordinate of the center of mass of one of the regions bounded between them.