

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  $x$  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.