

SECTION 2.6: MOMENTS AND CENTERS OF MASS

1. Intro to Moments and Center of Mass in One Dimension with Point Masses

2. For the masses and locations below, (a) make a guess about the location of the center of mass, then (b) use the work from #1 above to find it precisely.

$m_1 = 2$ at $x_1 = 0$, $m_2 = 4$ at $x_2 = 2$, and $m_3 = 10$ at $x_3 = 10$.

3. Intro to Moments and Center of Mass in One Dimension with Continuous Density

4. Compute the center of mass for a thin rod with density $\rho(x) = 12x^2$ kg/m assuming one end of the rod is at $x = 0$ m and the other is at $x = 2$ m.

5. Intro to Moments and Center of Mass in Two Dimensions

6. Find the center of mass for the region bounded by $y = 1/x$, $y = 0$, $x = 1$, and $x = 5$. Assume $\rho = 2$. Sketch the region and see if your answer seems plausible.

7. Center of Mass in Two Dimensions Again

8. Find the center of mass for the region bounded by $y = 5 - x^2$, $y = 1$. Assume ρ is constant. Sketch the region and see if your answer seems plausible.