

## 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.

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

### 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  $\rho$  is constant. Sketch the region and see if your answer seems plausible.