HW 9-1 Soln)

We can treat this as two separate problems. The x coördinate of the center of mass is given by

$$x_{\text{CM}} = \frac{\sum_n m_n x_n}{\sum_n m_n} = \frac{4(-5) + 9(-1) + 1(2) + 2(7)}{4 + 9 + 1 + 2} = \frac{-13}{16} = \frac{-0.813 \text{ m}}{16} \, .$$

$$y_{\text{CM}} = \frac{\sum_n m_n y_n}{\sum_n m_n} = \frac{4(1) + 9(-2) + 1(4) + 2(-5)}{4 + 9 + 1 + 2} = \frac{-20}{16} = \frac{-1.25 \text{ m}}{1}.$$