

**Answer on Question #74511, Physics / Mechanics — Relativity**

**Question** Four masses are attached to a light stick at different positions. 3 kg is attached at 17 cm, 1.2 kg is attached at 39 cm, 2.4 kg is attached at 61 cm, and 1.3 kg is attached at 89 cm (all distances from the left end). Where will be the center of mass (from the left end, in cm)?

**Solution** By definition, center mass is at:

$$X_c = \frac{x_1 m_1 + x_2 m_2 + x_3 m_3 + x_4 m_4}{m_1 + m_2 + m_3 + m_4} = \frac{17 \cdot 3 + 39 \cdot 1.2 + 61 \cdot 2.4 + 89 \cdot 1.3}{3 + 1.2 + 2.4 + 1.3} \approx 45.56 \text{ cm}$$