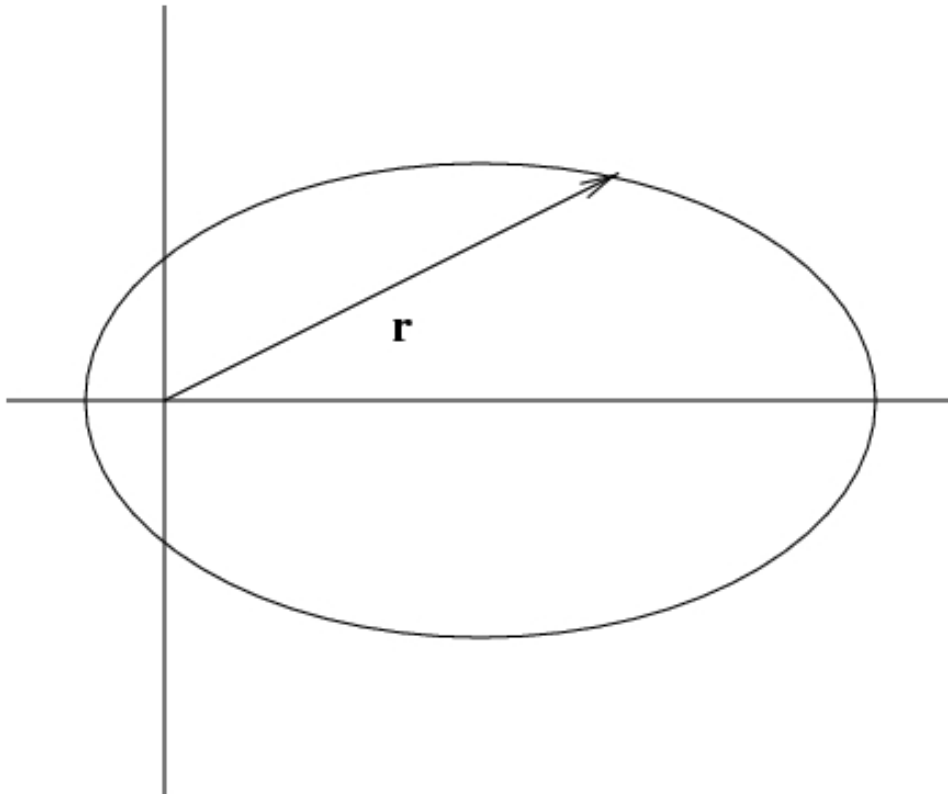


### 1 Undo Formulas for Center of Mass (Geometry)

*(Sketch limiting cases) Purpose: For two central force systems that share the same reduced mass system, discover how the motions of the original systems are the same and different.*

The figure below shows the position vector  $\vec{r}$  and the orbit of a “fictitious” reduced mass  $\mu$ .



- (a) Suppose  $m_1 = m_2$ , Sketch the position vectors and orbits for  $m_1$  and  $m_2$  corresponding to  $\vec{r}$ . Describe a common physics example of central force motion for which  $m_1 = m_2$ .
- (b) Repeat, for  $m_2 > m_1$ .