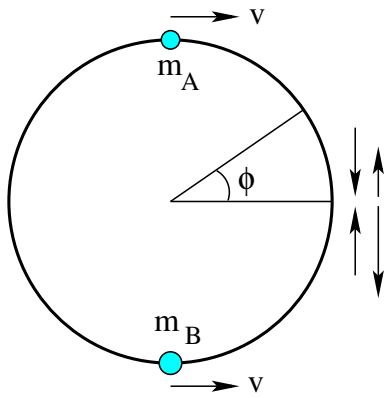
[mex273] Round and round, back and forth

Two blocks of masses m_A and m_B are constrained to move without friction along a circular path in a horizontal plane. They are simultaneously launched with equal speed from the positions shown and then undergo a sequence of elastic collisions with no end.
(a) Find the velocities (tangential to the circle at any given angle ϕ) before and after each collision for arbitrary values of m_A and m_B.
(b) Find the angle where each collision takes place until the pattern repeats for the case $m_A = 2$kg and $m_B = 4$kg.



Solution: