

Answer on question #59285, Physics / Classical Mechanics

Question 2 particles of masses 'M' and 'm', separated by an infinite distance are released from rest. they move under mutual gravitational attraction. then the velocity of approach at an instant at which mutual separation is 'd' is

Solution From energy conservation

$$\frac{(m + M)v^2}{2} = \frac{GMm}{r^2}$$
$$v = \sqrt{\frac{2GMm}{(M + m)r^2}}$$