

2-18. Two balls  $A$  and  $B$  collide with initial velocities  $v_A \sim N(10,1^2)$  m/s and  $v_B \sim N(8,0.5^2)$  m/s. After collision, the two balls move together. If  $m_A = 5$  kg and  $m_B = 2$  kg, determine the probability that their common velocity is smaller than 5 m/s just after the collision. Assume the floor is smooth.

**Solution:**  $\Pr\{v < 5\} = 0.58$

