

2-30. Two smooth balls A and B are moving toward the origin O with initial velocities $(v_A)_1 \sim N(3, 0.3^2)$ m/s and $(v_B)_1 \sim N(2, 0.2^2)$ m/s, respectively. Before collision, $\theta_1 = 45^\circ$, and after collision, $\theta_2 = 45^\circ$. If $m_A = 2$ kg and $m_B = 2$ kg, determine the velocity of ball B in the x -axis after collision. Assume $(v_A)_1$ and $(v_B)_1$ are independent.

Solution: $(v_B)_{2x} \sim N(2.24, 0.47^2)$ m/s.

