A door with uniform mass weighs W lbs and is supported by hinges A and B. If hinge A resists **forces** in all directions, while hinge B resists **only forces** in the x and y directions, determine the components of reaction at both hinges. Assume all force component vectors point in the positive x, y, and z - axes.

$$\Sigma F_z = 0 \rightarrow A_z - W = 0 \rightarrow A_z = W$$

$$\Sigma (M_x)_A = 0 \rightarrow -(d_2 + d_3)B_y - d_1 W = 0 \rightarrow B_y = -\frac{d_1}{d_2 + d_3} W$$

$$\Sigma F_x = 0 \rightarrow A_x + B_x = 0 \rightarrow A_x = -B_x$$

$$\Sigma (M_y)_A = 0 \rightarrow (d_2 + d_3)B_x = 0 \rightarrow A_x = B_x = 0$$

$$\Sigma F_y = 0 \rightarrow A_y + B_y = 0 \rightarrow A_y = -B_y = \frac{d_1}{d_2 + d_3} W$$