**Problem 13.5.5.41:** A cue ball in a billiards video game lies at P(25, 16). We assume that each ball has a diameter of 2.25 screen units, and pool balls are represented by the point at their center.

    a. The cue ball is aimed at an angle of 58° above the negative x-axis toward a target ball at A(5, 45). Do the balls collide?

    b. The cue ball is aimed at the point (50, 25) in an attempt to hit a target ball at B(76, 40). Do the balls collide?

    c. The cue ball is aimed at an angle θ above the x-axis in the general direction of a target ball at C(75, 30). What range of angles (for $0 \leq \theta \leq \frac{\pi}{2}$) will result in a collision? Express your answer in degrees.
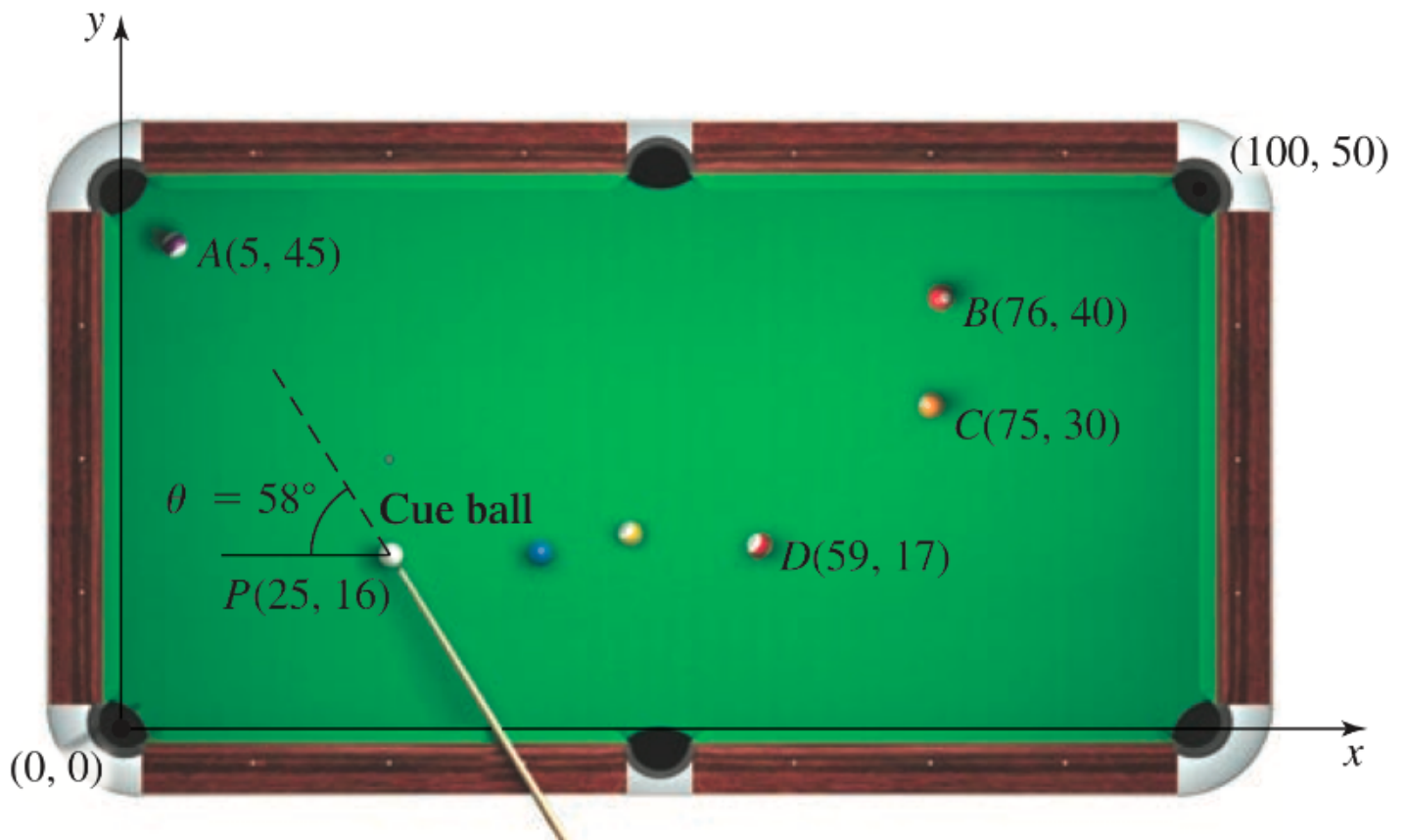
Modified Problem 13.5.5.31: Determine whether the lines $\vec{r}(t) = \langle 1, 3, 2 \rangle + t\langle 6, -7, 1 \rangle$ and $R(s) = \langle 10, 6, 14 \rangle + s\langle 8, 1, 4 \rangle$ are parallel or skew, and find their intersection(s) if any exist.

Homemade Problem: Find an equation of the plane P through the points P$(5, 3, 7)$, Q$(0, 1, 0)$, and R$(1, 2, 1)$.