

Real-Life Application: When Will I Ever Use This?

For use with pages 150–156

Playing Pool

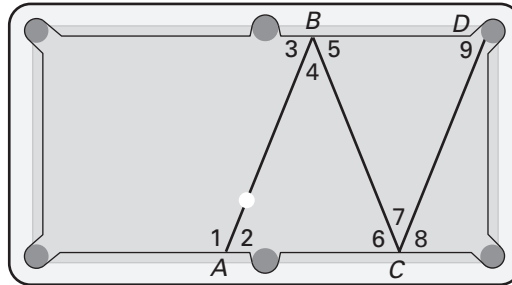
Pool is a popular American pastime, played throughout the country, but the game did not originate in the United States; it was first played in northern Europe. No one knows exactly when people began playing billiards, which is pool's predecessor, but we know that people were playing the game as early as 1600.

Suppose that you and a friend are playing a game of pool. You have been playing all afternoon and have just figured out an important concept in the game: the angle at which the ball hits the rail is equal to the angle at which it leaves the rail. The diagram of the pool table below shows a marvelous shot, where you manage to hit the ball into a corner pocket.

Suppose you know that $m\angle 3 = 68^\circ$. Because of your newly discovered important pool concept, you know that $m\angle 3 = m\angle 5 = m\angle 6 = m\angle 8 = 68^\circ$. You also know that the pool table's sides are parallel.

In Exercises 1–7, use the information above.

- $m\angle 4 = \underline{\hspace{1cm}}^\circ$
- $m\angle 7 = \underline{\hspace{1cm}}^\circ$
- Is it possible to prove that the lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ are parallel? Explain your reasoning.
- $m\angle 9 = \underline{\hspace{1cm}}^\circ$ Why?



- What would happen to the ball if it hit the rail at a 90° angle?
- Draw a similar shot using the short rails of the pool table. Does the distance between the rails make a difference?
- If you made the same shot on a pool table whose rails were not parallel, would the ball still go into the pocket? Make a sketch and explain your reasoning.