

Pre-calculus
Applications 1 0607

- 1) You are playing a game of billiards on a standard 92" by 46" pool table. In this game you score points by bouncing the ball off as many sides of the table as possible prior to sinking the ball in the called pocket. The ball is currently 10 inches down and 12 inches to the right of the top left pocket. You call that you will sink it in the bottom right corner pocket. Write functions to determine the path of the ball if :
- Sink it without bouncing off any sides.
 - Sink it bouncing off exactly one side.
 - Sink it bouncing off exactly two sides.
 - Sink it bouncing off exactly three sides.
 - Sink it bouncing off a large number of sides.



- 2) An 8-inch by 10-inch photograph is pasted onto a cardboard mat such that the photo is surrounded by a uniform border.
- Determine the area of the border as a function of the width of the border.
 - Sketch and interpret the function. Be sure to describe its relevant domain and range.
 - If the ratio of the area of the photo to the area of the border is to be 1 to 1, determine the width of the border and make a "to-scale" sketch. Then, determine the width if the ratio is to be x to 1.
 - Find two framed pictures from around your home (two for each person, 4 total for pairs) and determine their ratios. Collaborate with two other groups (so you have 8-12 pieces of data (the ratios)), and hypothesize about an ideal ratio for pictures.

