Alice, Bob, and Charlie visit the gym on Saturday for their hour-long workouts. Alice always arrives between 2:00 and 3:00, Bob between 2:30 and 3:30, and Charlie between 3:00 and 4:00. Assume their arrival times are drawn independently and uniformly from the specified intervals, i.e., any arrival time in the given window is equally likely. If they each stay for precisely one hour, what is the probability that on any given Saturday there exists a moment in time when all three are present at the gym?

Solutions to the last problem were submitted by Mark Girard (alum), Rob Hill (Gambrills, Maryland), Lincoln James (Chicago, IL), Hari Kishan (India), Lee (Ithaca, NY), Tom O’Neil (Central Coast of CA), Benjamin Phillabaum (Northbrook, IL), Luciano Santos (Lisboa, Portugal), F. Wallner (Germany), and Yian Ann Xu (Beaverton, OR).

Solutions for this problem can be submitted to Dr. Brian Miceli at bmiceli@trinity.edu, or you can drop them off at his office, MMH 115F. People with correct solutions will be acknowledged on the next problem. For old problems, follow the “Problem of the Week” link at www.trinity.edu/bmiceli, and if you like these problems, you may be interested in the Putnam Exam. More information on the Putnam Exam can also be found at www.trinity.edu/bmiceli.