Problem of the Week
Number Four
September 26 , 2016

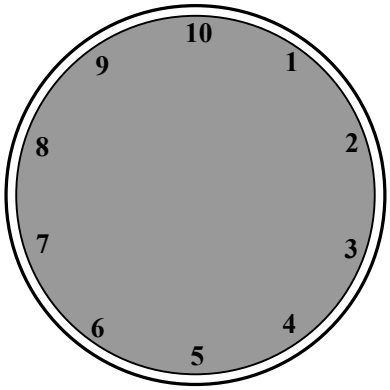
Apparently the ancient Egyptians were in the habit of dividing the day-time into ten hours. "Twilight" hours were added at the beginning and end of the period, representing the transition periods between day and night.

Night-time was divided into twelve hours, a procedure that in some way depended on observations of the stars. For added confusion, day-time hours and night-time hours were not of the same length. Hour-lengths also varied based on the season. Nonetheless, this is the origin of our modern habit of dividing a day into twenty-four hours.

Dividing hours into sixty minutes, and minutes into sixty seconds, comes from the Babylonians. They employed a base sixty number system, as opposed to the base ten to which we are accustomed today. Mercifully, we have not retained their custom of dividing a day into 360 parts, each of which would be equal to four minutes as we measure time.

The Egyptians used a variety of mechanisms for measuring the passage of time. With their ten hour day, if they had access to more modern technology they might have employed a clock face like the one in this week's problem.

An unusual clock has the numbers 1 through 10 on its face, equally spaced, as shown. It takes sixty minutes for the minute hand to make one, full 360 degree rotation. As the minute hand does this, the hour hand moves continuously from one number to the next. At what exact time, between 3:00 and 4:00 on *this* clock, will the two hands coincide?



Think you have it figured out? Then follow these instructions to the letter:

Submissions are due to Jason Rosenhouse by 5:00 on ***Friday, September 30****. Solutions should be written on the back of an official POTW handout. Place your name, e-mail address, and the section numbers and professors of any math courses you are taking, in the* ***upper right corner*** *of the front of the page. Also provide a brief explanation of your answer! One weekly winner will receive a five-dollar gift card from Starbucks. Solutions will be posted at this website, by the Monday after the problem is due:*

http://educ.jmu.edu/∼rosenhjd/POTW/Spring15.html