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## Problem of the Week

### Solution Four

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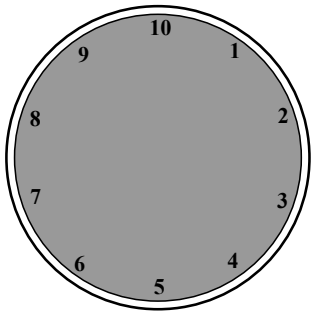
It follows that we must have that

$$10x = 18 + x.$$

The solution is  $x = 2$ , which implies that  $18 + x = 20$ . This corresponds to the time 3:20.

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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?



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**SOLUTION:** Since there are ten numbers on the clock, it takes six minutes for the minute hand to move from one number to the next. Therefore, it takes eighteen minutes for the minute hand to move from the ten to the three.

Now let  $x$  denote the number of minutes that have passed, since 3:00, before the two hands coincide. At that time, the hour hand will have moved  $x$  minutes while the minute hand has moved  $18+x$  minutes. The minute hand moves ten times as fast as the hour hand.