
Problem of the Week

Solution Three

My accurate clock has only one hand, an hour hand. At the precise moment that this hand points directly to the 22-minute mark, what is the exact time? (You should disregard AM or PM.)

SOLUTION: Since the hour hand points to the 22 minute mark, we know the time is between 4:00 and 5:00.

It takes the hour hand sixty minutes to move through the five minute marks between four and five. We know it moves at a constant rate, and it has currently moved through two of the minute marks. It follows that we are two-fifths of the way from 4:00 to 5:00. This corresponds to a time of 4:24.

Simpkins and Green made arrangements to meet at the railroad station to catch the eight-o'clock train to Philadelphia. Simpkins thinks that his watch is twenty-five minutes fast although it is in fact ten minutes slow. Green thinks his watch is ten minutes slow, while it has actually gained five minutes. What will happen if both men, relying upon their watches, try to arrive at the station five minutes before the train time?

SOLUTION: Simpkins will try to arrive at 7:55. He thinks that corresponds to a time of

8:20 on his watch. But when his watch says 8:20 it is really 8:30, so he will miss the train by a lot. Green will also try to arrive at 7:55. He thinks that corresponds to a time of 7:45 on his watch. But when his watch says 7:45 the real time is 7:40, so he will arrive in plenty of time.

Junior was late to class again. His teacher taunted him by saying, "You're late! Do you know what time it is?" Junior replied, "Just add one-quarter of the time from midnight until now to half the time from now until midnight, and that's what time it is." So, what time is it?

SOLUTION: Denote the number of hours past midnight by t . One-quarter of the time from midnight until now is $\frac{t}{4}$. One-half the time from now until midnight is $\frac{24-t}{2}$. Junior's statement implies that we have the equation:

$$\frac{t}{4} + \frac{24-t}{2} = t.$$

This is quickly seen to imply that $5t = 48$, which means $t = 9.6$. This corresponds to a time of 9:36 am.

Pretty impressive that Junior was able to work that out so quickly in his head!