Problem of the Week
Problem B and Solution
Train Watching

Problem
Henry loves to watch the trains enter, then leave the 2 km tunnel through the mountain across the valley from his home. One day, he sees the engine of a 1 km long train enter the tunnel at 12:10 p.m. If the train is travelling at 60 km per hour, at what time will Henry see the caboose leave the other end of the tunnel?

Solution
As the front of the engine enters the tunnel, the back of the caboose is 1 km from the entrance of the tunnel and $1 + 2 = 3$ km from the other end of the tunnel. The caboose must travel a total of 3 km.

To travel 3 km at 60 km per hour, it will take the caboose $3 \div 60 = \frac{1}{20}$ of an hour, or 3 minutes. Alternatively, since the train travels at 60 km per hour, it travels 60 km in 60 minutes or 1 km each minute. So to travel 3 km the caboose will take 3 minutes.

Henry will see the caboose leave the other end of the tunnel 3 minutes after 12:10 p.m., that is, at 12:13 p.m.