



Problem of the Week

Grade 7 and 8

Am I There Yet?

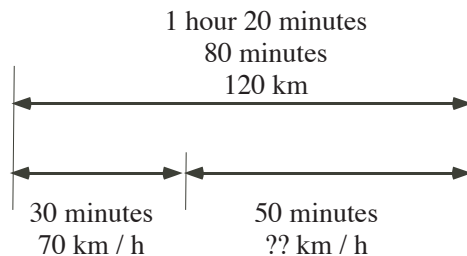
Solution

Problem

Two towns are 120 km apart. Cara Van wants to drive from one town to the other in exactly one hour and twenty minutes. For the first 30 minutes, Cara drives at a constant rate of 70 km/h. At what constant rate, in km/h, must she drive for the remaining time if she is to accomplish her goal?

Solution

Representing the information in a diagram is often useful in helping to solve the problem.



The total trip is one hour and twenty minutes or 80 minutes. For the first 30 minutes, Cara travels at a constant rate of 70 km/h. This means that in one hour (60 minutes) she would travel 70 km. Therefore, in half the time or 30 minutes she would travel half the distance or $70 \div 2 = 35$ km.

So Cara must drive $120 - 35 = 85$ km in $80 - 30 = 50$ minutes.

We need to determine the constant rate that Cara needs to drive to accomplish this. Cara needs to drive 85 km in 50 minutes. By dividing each term by 5, Cara needs to drive $85 \div 5 = 17$ km in $50 \div 5 = 10$ minutes. Multiplying each term by 6, Cara must drive $17 \times 6 = 102$ km in $10 \times 6 = 60$ minutes (1 hour).

Therefore, Cara must drive 102 km/h to accomplish her goal of driving 120 km to her destination in one hour and twenty minutes.

