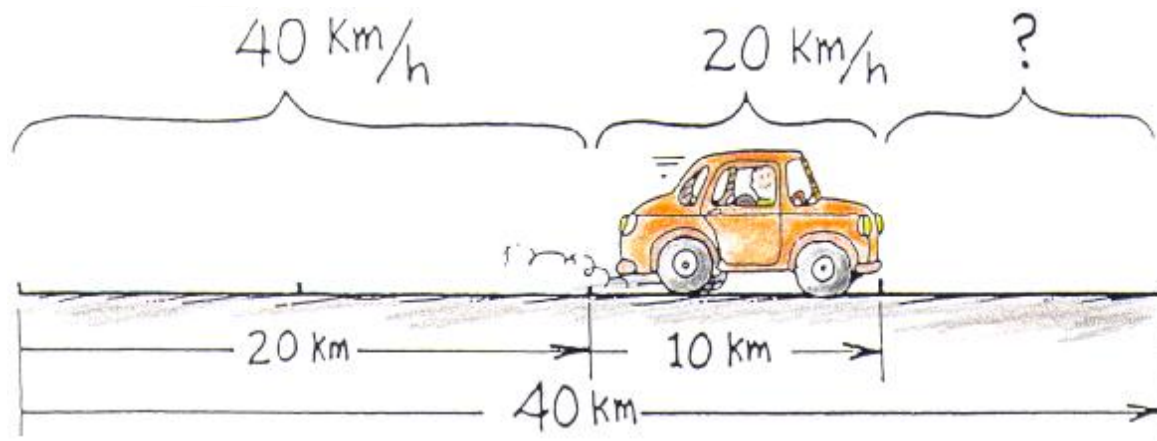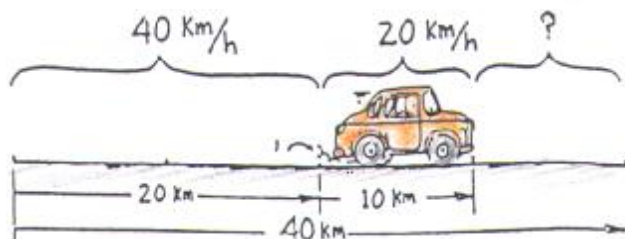A motorist wishes to travel 40 kilometers at an average speed of 40 km/h. During the first 20 kilometers, an average speed of 40 km/h is maintained. During the next 10 kilometers, however, the motorist averages only 20 km/h. To drive the remaining 10 kilometers and average 40 km/h, the motorist must drive

a) 60 km/h.   b) 80 km/h.   c) 90 km/h.

d) faster than the speed of light.

Next-Time Question

40 Km/h   20 Km/h   ?

20 km   10 Km
40 km

A motorist wishes to travel 40 kilometers at an average speed of 40 km/h. During the first 20 kilometers, an average speed of 40 km/h is maintained. During the next 10 kilometers, however, the motorist goofs off and averages only 20 km/h. To drive the last 10 kilometers and average 40 km/h, the motorist must drive
a) 60 km/h.   b) 80 km/h.   c) 90 km/h.
d) faster than the speed of light.

Answer: d, faster than the speed of light

You would have to travel at an infinite speed and finish the last 10 kilometers in zero time to attain an average speed of 40 km/h! Why? Because you have one hour to make the trip, and your one hour is up at the 30-km point. You spent $^{1}/_{2}$ hour to the halfway point, 20 kilometers, and another $^{1}/_{2}$ hour when you averaged 20 km/h over that 10-kilometer stretch. So you'd have to cover the entire 40 kilometers in 1 hour—means the last 10 kilometers in no time at all.

BE CAREFUL IN AVERAGING SPEEDS LIKE YOU AVERAGE DISTANCES. SPEED INVOLVES DISTANCE AND *TIME*. BE SURE TO CONSIDER TIME IN PROBLEMS THAT INVOLVE SPEED!