Answer on Question #46205, Physics, Other

Task:

Sally travels by car from one city to another. She drives for 27.0 min at 72.0 km/h, 54.0 min at 33.0 km/h, and 39.0 min at 74.0 km/h, and she spends 8.0 min eating lunch and buying gas.

(a) Determine the average speed for the trip.

Answer:

27.0 min = 27/60 h = 9/20 h;

54.0 min = 54/60 h = 9/10 h;

39.0 min = 39/60 h = 13/20 h.

Then, time spent on a trip is :

$$T = \frac{9}{20} + \frac{9}{10} + \frac{13}{20} = 2h.$$

Total distance is : $D = \frac{9}{20} \cdot 72 + \frac{9}{10} \cdot 33 + \frac{13}{20} \cdot 74 = \frac{551}{5} km$

So, average speed for the trip is : $V = \frac{D}{T} = \frac{\frac{551}{5}}{2} = 55.1 km/h$