Answer on Question #47473, Physics, Mechanics | Kinematics | Dynamics

Task:

Sally travels by car from one city to another. She drives for 26.0 min at 65.0 km/h, 54.0 min at 33.0 km/h, and 44.0 min at 62.0 km/h, and she spends 15.0 min eating lunch and buying gas.

(a) Determine the average speed for the trip.

Answer:

26.0 min = 26/60 h = 13/30 h;

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

44.0 min = 44/60 h = 11/15 h.

Then, time spent on a trip is :

$$T = \frac{13}{30} + \frac{9}{10} + \frac{11}{15} = \frac{31}{15} h.$$

Total distance is : $D = \frac{13}{30} \cdot 65 + \frac{9}{10} \cdot 33 + \frac{11}{15} \cdot 62 = \frac{310}{3} = 103.3 km$

So, average speed for the trip is : $V = \frac{D}{T} = \frac{\frac{310}{3}}{\frac{31}{15}} = 50 km/h$