Answer on Question #46870, Physics, Computational Physics

Question:

Sally travels by car from one city to another. She drives for 20.0 min at 80 km/h, 12 min at 105 km/h, and 45 min at 40 km/h. She spends 13.0 min eating lunch and buying gas. Determine the average speed for the trip.

Answer:

Average speed equals:

$$v = \frac{S}{t}$$

where S - a total distance, t - a total time.

The total time equals:

$$t = 20\ min + 12\ min + 45\ min + 13\ min = 90\ min = 1.5\ hours$$

The total distance equals:

$$S = 20\ min \cdot 80\frac{km}{h} + 12\ min \cdot 105\frac{km}{h} + 45\ min \cdot 40\frac{km}{h} = 77.67\ km$$

Average speed equals:

$$v = \frac{77.67}{1.5}\frac{km}{h} = 51.78\frac{km}{h}$$

Answer: $51.78\ \frac{km}{h}$