## Question 34506

The average speed is given by $v_{average}=\frac{S}{t}$ , where S is the distance covered, and t is the time needed to cover this distance.
Sally travels three different distances at different speeds. Each of the distance is $l=v\cdot t$ , where $v$ is the speed on particular part of the road and $t$ is the time she moved with that speed. Hence, total distance is $S=v_1t_1+v_2t_2+v_3t_3=\frac{28}{60}h\cdot 79\frac{km}{h}+\frac{49}{60}h\cdot 31\frac{km}{h}+\frac{49}{60}h\cdot 70\frac{km}{h}=119.35\,km$ . Total time of the trip is $t_1+t_2+t_3+T=\frac{28+49+49}{60}+\frac{10}{60}\approx 2.267\,h$ (Three time intervals needed to cover three corresponding distances plus 10 minutes for eating lunch and buying gas).

Thus, average speed is $v_{average}=\frac{119.35\,km}{2.267\,h}\approx 52.65\frac{km}{h}$ .