

If you drive 75 miles at a speed of 70 miles per hour, and then return along the same route at a more leisurely speed of 50 miles per hour, what is your average speed for the round trip?

- We will use the formula: *distance = rate x time*, $d = r \times t$
- The total distance traveled is *150 miles*.
- Since $t = \frac{d}{r}$, the time it takes to complete the first 75 miles is $t_1 = \frac{75}{70} = 1.07$.
- Since $t = \frac{d}{r}$, the time it takes to complete the next 75 miles is $t_2 = \frac{75}{50} = 1.50$.
- The total time for the round trip is $t_1 + t_2 = 1.07 + 1.50 = 2.57$.
- Since $r = \frac{d}{t}$, the average speed for the round trip is $r = \frac{150}{2.57} = 58.4 \text{ mph}$.

Note: The average speed is not the average of 50 mph and 70 mph which is 60mph!