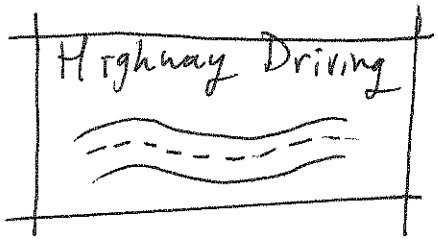

If I go 60 mph, I go 60 miles per hour. So I go 60 miles in 1 hour.

Let's math this up... Δx Δt

$$\bar{v} = 60 \text{ mph}$$
$$\Delta x = 60 \text{ miles}$$
$$\Delta t = 1 \text{ hour}$$

$$\bar{v} = \frac{\Delta x}{\Delta t} = \frac{60 \text{ miles}}{1 \text{ hour}} = 60 \text{ mph}.$$

If I go 75 miles per hour, the question is asking how long it would take to go 60 miles?

$$\bar{v} = \frac{\Delta x}{\Delta t} \qquad \begin{array}{l} \bar{v} = 75 \text{ mph} \\ \Delta x = 60 \text{ miles} \end{array}$$

$$75 \frac{\text{miles}}{\text{hour}} = \frac{60 \text{ miles}}{\Delta t}$$

$$\Delta t = \frac{60 \text{ miles}}{75 \frac{\text{miles}}{\text{hour}}} = 0.8 \text{ hours}.$$

So at 75 mph: 60 miles takes 0.8h = 48 minutes

at 60 mph: 60 miles takes 1.0h = 60 minutes.

Take the difference...

$60 - 48 =$ **12 minutes**

You save 12 minutes by going 75 mph instead of 60 mph on your 60-mile trip!