Exercise 47

A car travels at a constant speed of 50 miles per hour. The distance the car travels in miles is a function of time, t, in hours given by $d(t) = 50t$. Find the inverse function by expressing the time of travel in terms of the distance traveled. Call this function $t(d)$. Find $t(180)$ and interpret its meaning.

Solution

The given equation for the distance of the car is

$$d = 50t.$$

Solve for t by dividing both sides by 50.

$$\frac{d}{50} = t$$

Therefore,

$$t(d) = \frac{d}{50},$$

and

$$t(180) = \frac{180}{50} = \frac{18}{5} = 3.6.$$

This means that for the car to travel 180 miles, it takes 3.6 hours.