EXAMPLE 4 **Solving a Motion Problem**

A car travels 250 km in the same time that a truck travels 225 km. If the speed of the car is 8 km per hr faster than the speed of the truck, find both speeds.

Step 1 **Read** the problem again. Given the distances traveled, we need to find the speed of each vehicle.

Step 2 **Assign variables.**

Let x = the speed of the car,
and y = the speed of the truck.

As in Example 3, a table helps organize the information. Fill in the distance for each vehicle, and use the assigned variables for the unknown speeds (rates).

	d	r	t
Car	250	x	$\frac{250}{x}$
Truck	225	y	$\frac{225}{y}$

The times must be equal.

To get the expressions for time, we solved the distance formula $d = rt$ for t. Since $\frac{d}{r} = t$, the two times can be written as $\frac{250}{x}$ and $\frac{225}{y}$, respectively.

Step 3 **Write a system of equations.** The problem states that the car travels 8 km per hr faster than the truck. Since the two speeds are x and y,

Step 4 **Solve**

Step 5 **State the answer.**