

2.7.41

Two cars leave a city on the same road, one driving 15 mph faster than the other. After 5 hours, the car traveling faster stops for lunch. After 5 hours and 30 minutes, the car traveling slower has not passed the faster car's position, but stops for lunch too. Assuming that the person in the faster car is still eating lunch, the cars are now 54 miles apart. How fast is each car driving?

The slower car is driving mph. (Type an integer or a decimal.)

The faster car is driving mph. (Type an integer or a decimal.)

$$D = R \cdot T$$

slower	$5.5R$	R	5.5
faster	$5(R+15)$	$R+15$	5

"How fast?" \Rightarrow rates variable is R .

"One drives 15 mph faster than other"

$$\Rightarrow R+15$$

$R+15$ is faster than R

Faster car stops after 5 hrs.

$$T=5, \text{ 2nd row}$$

$$5 \text{ hrs } 30 \text{ min} = 5.5 \text{ hr}$$

$$T=5.5, \text{ 1st row}$$

Use formula to fill in distances.

"Cars are 54 miles apart" means:

$$\left(\begin{array}{c} \text{distance} \\ \text{faster} \\ \text{car} \end{array} \right) - \left(\begin{array}{c} \text{distance} \\ \text{slower} \\ \text{car} \end{array} \right) = 54$$

$$5(R+15) - 5.5R = 54$$

$$\text{dist } 5R + 75 - 5.5R = 54$$

$$75 - .5R = 54$$

$$-.5R = -21$$

$$R = 42 \text{ mph}$$

$$R+15 = 57 \text{ mph}$$