

Answer on Question #55491 –Math – Algebra

Two buses left a downtown terminal at the same time, traveling in opposite directions. One has a speed of 10 mph more than the other. Twelve minutes ($\frac{1}{5}$ hr) later, they were 12 miles apart. What were their speeds?

Solution

Let x mph be the speed of the second bus, then $(x+10)$ mph is the speed of the first bus.

In $\frac{1}{5}$ hr later $(\frac{1}{5}(x+10))$ m is the first bus's distance from the terminal,

$(\frac{1}{5}x)$ m is the second bus's distance from the terminal.

On condition that the buses were 12 miles apart, we get such equation:

$$\frac{1}{5}(x+10) + \frac{1}{5}x = 12$$

$$x+x+10=60$$

$$2x=50$$

$$x=25; \quad x+10=35.$$

The speed of the first bus was 35 mph, the speed of the second bus was 25mph.

Answer: the speed of the first bus was 35 mph, the speed of the second bus was 25 mph.