

### Answer on Question #34114 – Math - Algebra

Let  $x$  be the number of days of traveling by the car and  $y$  be the number of kilometers. Then  $\text{Php } (1500x + 35y)$  is money spent on renting a car using services of the first company and  $\text{Php } (2000x + 25y)$  is money spent on renting a car using services of the second company.

If we use services of the first company, we will save more money, when we will travel much longer. Using the services of the second company will give us advantages, when we will drive a longer distance. Prove it.

Solve  $1500x + 35y > 2000x + 25y$ ,  $10y > 500x$ ,  $y > 50x$ . Thus, if inequality  $y > 50x$  holds true, then services of the second company are cheaper. If inequality  $y < 50x$  holds true, then services of the first company are cheaper.

Let  $x = 1000, y = 10$ . Then

$$\begin{cases} 1500x + 35y = 1500000 + 350 = 1500350 \\ 2000x + 25y = 2000000 + 250 = 2000250 \end{cases}$$

$$1500350 < 2000250$$

So, services of the first company are more economical in this case.

Let  $x = 10, y = 1000$ . Then

$$\begin{cases} 1500x + 35y = 15000 + 35000 = 50000 \\ 2000x + 25y = 20000 + 25000 = 45000 \end{cases}$$

$$50000 > 45000$$

Services of the second company are more economical in this case.