

Exercise 23

A car rental company offers two plans for renting a car.

- Plan A: 25 dollars per day and 10 cents per mile
- Plan B: 50 dollars per day with free unlimited mileage

How many miles would you need to drive for plan B to save you money?

Solution

Let d be the number of days the car is rented for, and let m be the number of miles the car is driven. Write an equation for the cost of each plan.

$$P_A(d, m) = 25d + 0.1m$$

$$P_B(d) = 50d$$

Find where Plan A is more expensive than Plan B.

$$P_A(d, m) > P_B(d)$$

$$25d + 0.1m > 50d$$

$$0.1m > 25d$$

$$\frac{0.1}{25}m > d$$

$$m > \frac{25}{0.1}d$$

$$m > 250d$$

Divide both sides by d , to get the number of miles per day.

$$\frac{m}{d} > 250$$

Therefore, you would need to drive more than 250 miles per day on average to save money with Plan B.