

Exercise 52

A rental car company rents cars for a flat fee of \$20 and an hourly charge of \$10.25. Therefore, the total cost C to rent a car is a function of the hours t the car is rented plus the flat fee.

- Write the formula for the function that models this situation.
- Find the total cost to rent a car for 2 days and 7 hours.
- Determine how long the car was rented if the bill is \$432.73.

Solution

Part a.

In addition to the \$20 fee, every hour costs \$10.25 to rent, so the total cost is

$$C(t) = 20 + 10.25t.$$

Part b.

Each day has 24 hours, so plug in $t = 2(24) + 7 = 55$ to the formula above.

$$C(55) = 20 + 10.25(55) = \$583.75$$

Part c.

Set the cost $C(t) = 432.73$ and solve the equation for t , the time the car was rented for.

$$C(t) = 20 + 10.25t = 432.73$$

$$10.25t = 432.73 - 20$$

$$10.25t = 412.73$$

$$t = \frac{412.73}{10.25}$$

$$t \approx 40.3 \text{ hours}$$