Possible Solutions

Michael is taking a road trip to Houston, Texas. His car can travel 230 miles with 14 gallons of gas. Michael's car holds 21 gallons of gas. If Michael's gas gauge indicates that he has $\frac{1}{3}$ tank of gas left, how many more miles can Michael travel before he must stop for gas?

Possible Solutions 1

- Students can use the information provided in the scenario. Michael's car can travel 230 miles on 14 gallons of gas so that would give the following rate, $\frac{230 \text{ miles}}{14 \text{ gallons}}$.

- Next, use the piece of information that tells how many gallons his tank holds, 21. Using this information will be useful as it helps determines how much gas he has in the tank. To do this, take the total tank capacity and make it the new numerator, then divide to determine the amount he has left, $\frac{21}{3}$ = 7 gallons left.

- Last, determine how many miles Michael can travel on 7 gallons of fuel by using the given rate from above. Compare the rates to solve like so.
$\frac{230 \text{ } miles}{14 \text{ } gallons} = \frac{? \text{ } miles}{7 \text{ } gallons}$ and then 230 miles ÷ 2 = 115 miles

- Michael can drive another 115 miles before stopping for gas.

Possible Solution 2

- This solution involves finding the unit rate first.

- To solve, $\frac{230 \text{ } miles}{14 \text{ } gallons} = \frac{? \text{ } miles}{1 \text{ } gallon}$ or 230 ÷ 14 = 16.4285714 = 16.429 mpg

- Next, determine how many gallons he has left in the tank. The full tank holds 21 gallons, so use that as the numerator which is $\frac{21}{3}$ which in turn gives him 7 gallons of gas left.
- Using the above unit rate of 16.429 mpg, determine how many miles he can travel with the 7 gallons of fuel remaining like so.

$$16.429 \times 7 = 115.003 = 115 \text{ miles}$$

- Michael can drive another 115 miles before stopping for gas.