The price of gas has gone down a little bit recently, though it is a lot higher than it was when I bought my first car in 1987. I decided to look it up and was amazed to find that the price of gas has increased 215% since then!

When I bought my car, I started driving from near Philadelphia, where I still live, to my parents’ house in Vermont. It is about 390 miles and my car got about 30 miles to the gallon. If gas then cost $0.86 a gallon, how much would I have to spend on gas to make the same trip now if my current car also gets about 30 miles to the gallon?

Extra: How many miles could I have driven in 1987 with the amount of money it costs me to drive 390 miles now?

MATH STANDARDS ALIGNMENT
CCSS.MATH.CONTENT.6.RP.A.3
Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

CCSS.MATH.CONTENT.6.RP.A.3.C
Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.

Personal Finance Big Ideas:
Inflation

METHOD 1
I have to figure out how much it will cost to make the same trip now. That means I need to know how many gallons of gas it will take and how much each gallon will cost.

I can figure out how many gallons it will take by dividing the number of miles by the number of gallons per mile.

390/30 = 13 gallons

Now I need to figure out how much gas costs now. I know that it has increased by 215% since then. I can find 215% of $0.86 to find out how much it has gone up and then add that to $0.86 to find the total.

2.15 • 0.86 = 1.849
1.849 + 0.86 = 2.709

So I know that gas now costs $2.71 per gallon.
To figure out how much I will have to spend, I can multiply the number of gallons by the cost per gallon.

$$13 \cdot 2.71 = 35.23$$

It will cost me $35.23 to make the same trip now.

**Extra:** If I had $35.23 then, I can figure out how many gallons of gas I can buy by dividing the total amount of money by the amount per gallon.

$$35.23 / 0.86 = 40.97$$

This means I could buy 40.97 gallons of gas in 1987. To figure out how far I could drive, I multiply that by how many miles I could drive per gallon.

$$40.97 \cdot 30 = 1229$$

I could drive 1229 miles. That is a lot further!

**METHOD 2**

I can figure this out by seeing how much the trip cost then, and then increasing that by 215%.

First I'll figure out how many gallons it takes. To go 390 miles when the car gets 30 miles per gallon, I know it will take

$$\frac{390}{30} = 13$$

gallons.

Since each gallon cost $0.86 then, I know it will cost

$$13 \cdot 0.86 = $11.18.$$  

To find how much it would be if that increased by 215%, that is the same as finding 315% of it (since the 215% gets added on to the whole thing, which is 100%). So I know that

$$11.18 \cdot 3.15 = $35.22.$$  

It will cost $35.22 to make the same trip now.
METHOD 3
I knew that I could figure out how many gallons you would need to drive that far by dividing the total miles by the miles per gallon.

\[
390/30 = 13
\]

So you need 13 gallons of gas.

To figure out 215% of 0.86, I decided to make a table to help me keep track.

<table>
<thead>
<tr>
<th>100%</th>
<th>100%</th>
<th>10%</th>
<th>5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.86</td>
<td>0.86</td>
<td>0.086</td>
<td>0.043</td>
</tr>
</tbody>
</table>

I added up all the amounts to find that 215% of $0.86 is $1.85. To find out how much gas costs now, I can add that to $0.86.

\[
1.85 + 0.86 = 2.71
\]

Gas costs $2.71 now. You need to buy 13 gallons, so I can multiply to find the total cost.

\[
2.71 \times 13 = 35.23
\]

It will cost $35.23 for you to make that same trip now.