

PhyzJob: Gas Gives Me Math



1. One Thursday night some time ago, Mr. Baird purchased 17.755 gallons of gasoline for his Phyzmo truck. The posted price of the gasoline was 4.439 dollars/gallon. The receipt is shown to the right.

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XXXXXXXXXXXX0662 DEBIT      6/26/08
BAIRD /DEAN                10:10PM
AARCO #2166
1055 Watt Ave              SEQ# 620
Sacramento CA 95825 AUTH# 0204701
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Pump 07      Gallons  Price  Total$
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Unlead 87    18.203 @ 4.439  81.24
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a. Which of the numbers above—if any—is/are a measurement?

18.203 gallons

b. Which of the numbers above—if any—is/are an exact value (a value for which there is no uncertainty—like a counting number)?

4.439 dollars/gallon

c. Calculate the actual value of the gasoline purchased using the correct number of significant figures.

18.203 gallons x 4.439 dollars/gallon = 81.243 dollars

d. Mr. Baird paid 24.48 dollars. Did he come out __ahead, __behind, or __even in the deal? Explain.

**He came out ahead (by 0.003 dollars or 0.3¢).
He was charged \$81.240 for \$81.243 worth of gas.**

2. On his previous fill-up, Mr. Baird zeroed the Phyzmo's trip odometer. Since then, he traveled 317.3 miles. The 18.203 gallons completely refilled the gas tank.

a. What is the number of miles Mr. Baird could travel using one gallon of gasoline? Express your answer as a ratio, then evaluate the ratio.

$$\frac{317.3 \text{ miles}}{18.203 \text{ gallons}} = \frac{17.43 \text{ miles}}{\text{gallon}} \quad [17.43]$$

b. What is the number of gallons Mr. Baird would use to travel one mile? Express your answer as a ratio, then evaluate the ratio.

$$\frac{18.203 \text{ gallons}}{317.3 \text{ miles}} = \frac{0.05736 \text{ gallons}}{\text{mile}} \quad [0.05736]$$

c. What is the value and meaning of 317.3/81.24 in this context?

3.906 is the number of miles traveled for each dollar of gas purchased.

d. What is the value and meaning of 81.24/317.3 in this context?

0.2560 is the number of dollars of gas purchased for each mile traveled.

e. Write and evaluate a ratio expressing the number of gallons of gasoline that could be purchased for one dollar.

$$\frac{18.203 \text{ gallons}}{81.24 \text{ dollars}} = \frac{0.2241 \text{ gallons}}{\text{dollar}} \quad [0.2241]$$