

Essay on so, what do we have: we dont know, what is more expensive cl 600 or z8

[Sociology](#), [Social Issues](#)



Question #1 [5 marks]

All we know is that Z8 costs \$130, 645, and x is our variable for CL 600.

First, assume, that CL 600 is more expensive. We know that its price is higher than on \$10, 000. So, if we will subtract \$130, 645 from x , we will obtain more than \$10, 000. This can be written in the form of inequality:

$$x-130645 > 10000$$

Consider the opposite situation, CL 600 is cheaper. Now if we subtract x from 130645 we will obtain more than \$10, 000. Hence,

$$130645-x > 10000$$

We know, that

$$130645 - x = -x-130645$$

Hence, the absolute value of this expressions is always bigger than 10000.

That's why the absolute inequality for both cases could be written in the following way:

$$x-130645 > 10000$$

It is the same like

$$130645-x > 10000$$

Because the absolute value is a positive value, it is like the difference between 2 numbers, it doesn't matter which one is higher. So, we have written, that the difference between the prices of two car models is higher than \$10, 000.

Question #2 [5 marks]

Let the amount of miles Shivani has driven in June is x . Then the cost of his mileage in June was $0.45x$ (as it costs \$0.45 per mile). We know, that the mileage claim was \$80 more than his claim for telephone calls. Hence the claim for telephone calls is $(0.45x - \$80)$. Also we know, that his claim for meals was \$20 less than his mileage claim. So, the meals expenses were $(0.45x - \$20)$. And all together these expenses were totaled in \$599. Hence, the sum of three expenses is equal to 599:

$$0.45x + 0.45x - 80 + 0.45x - 20 = 599$$

Remove the parentheses:

$$0.45x + 0.45x - 80 + 0.45x - 20 = 599$$

Or

$$1.35x = 699$$

$$x = \frac{699}{1.35} \approx 517.78$$

So, Shivani has driven approximately 517.78 miles in June.

Question #3

And this question requires from us the knowledge about the system of two linear equations.

So, let the number of adults visited this diner was x , and the number of children was y .

According to the conditions, there were 266 customers all together. Hence,
 $x + y = 266$

We know, that each serving for adult is for \$25.90, and each serving for child is 17.90. Hence, the revenue from adults was $25.90x$ (the price for

one multiplied on the number of adults) and the revenue from children was $17.90 \cdot y$ (the price for one multiplied on the number of children). And first revenue plus second revenue is total revenue of \$6,609.40. In other words, we can write it down like a second equation:

$$25.90x + 17.90y = 6609.4$$

Now compare two equations into the system:

$$x + y = 266 \quad 25.90x + 17.90y = 6609.4$$

Now let it be solved using the substitution method. From the first equation we can express x:

$$x = 266 - y$$

This expression can be substituted in the second equation:

$$25.90(266 - y) + 17.90y = 6609.4$$

Remove the parentheses multiplying 25.90 on both 266 and y and then subtract:

$$6889.4 - 25.90y + 17.90y = 6609.4$$

Or

$$6889.4 - 8y = 6609.4$$

Move -8y into the right side, and 6609.4 into the left:

$$6889.4 - 6609.4 = 8y$$

Hence,

$$8y = 280$$

$$y = 280 / 8 = 35$$

So, there were 35 children, and this is the answer.

P. S. It is available to find how many adults were in diner that day. 266 minus 35 gives us 231 adults.

Sources

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