Step one

$42mg/100ml = 4.2 \quad x \quad 10^{-4}g/ml$

$\frac{4.2 \quad x \quad 10^{-4}g/ml}{4kcal/g} = 1.05 \quad x \quad 10^{-4}kcal/ml$

Step two

as the mixture was diluted by a factor of 10 to get to the new solution, the concentration must be multiplied by a factor of ten to get back to the original concentration. $1.05 \quad x \quad 10^{-4}kcal/ml \quad x \quad 10 = 1.05 \quad x \quad 10^{-3}kcal/ml$

Step three

now we know that this 2.5ml sample which we now have the concentration of was taken from a 10.5 ml solution (10ml from the drink and 0.5 ml of HCl solution) but we need to get back to the concentration of the 10ml sample so we do the same process again. if the dilution factor was $\frac{10.5}{10}$ we must now multiply by this factor to get the original concentration:

$10 = 1.05 \quad x \quad 10^{-3}kcal/ml \quad x \quad \frac{10.5}{10} = 1.1025 \quad x \quad 10^{-3}kcal/ml$

Step Four

now we have the concentration of the 10ml sample and hence the concentration of the original drink. as we are told a glass is 250 ml

$250ml \quad x \quad 1.1025 \quad x \quad 10^{-3} = 0.276kcal = 276cal$