










### 1. Problem

Given the following information:




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	+		+		=	564
	+		+		=	873
	+		+		=	864

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Compute:

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	+		+		=	?
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### Solution

The information provided can be interpreted as the price for three fruit baskets with different combinations of the three fruits. This corresponds to a system of linear equations where the price of the three fruits is the vector of unknowns  $x$ :

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$x_1 =$		$x_2 =$		$x_3 =$	
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The system of linear equations is then:




$$\begin{pmatrix} 2 & 0 & 1 \\ 1 & 0 & 2 \\ 0 & 1 & 2 \end{pmatrix} \cdot \begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix} = \begin{pmatrix} 564 \\ 873 \\ 864 \end{pmatrix}$$

This can be solved using any solution algorithm, e.g., elimination:

$$x_1 = 85, x_2 = 76, x_3 = 394.$$

Based on the three prices for the different fruits it is straightforward to compute the total price of the fourth fruit basket via:

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	+		+		=	
$x_1$	+	$x_2$	+	$x_3$	=	
85	+	76	+	394	=	555

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