













### 1. Problem

Given the following information:

	+		+		=	909
	+		+		=	516
	+		+		=	921




Compute:

	+		+		=	?
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- (a) 434
- (b) 378
- (c) 921
- (d) 678
- (e) 528

### 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  $x$ :

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

$$\begin{pmatrix} 1 & 0 & 2 \\ 2 & 0 & 1 \\ 0 & 1 & 2 \end{pmatrix} \cdot \begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix} = \begin{pmatrix} 909 \\ 516 \\ 921 \end{pmatrix}$$

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

$$x_1 = 41, x_2 = 53, x_3 = 434.$$

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

	+		+		=	
$x_1$	+	$x_2$	+	$x_3$	=	
41	+	53	+	434	=	528

- (a) False
- (b) False
- (c) False
- (d) False
- (e) True