

# Solutions Quiz 1

PHY 2048C

Problem 1

$A_0$   $\rightarrow$  initial Alberto  
 $S_0$   $\rightarrow$  " Sofia  
 $M_0$   $\rightarrow$  " Maria

$A_1$   $\rightarrow$  final Alberto  
 $S_1$   $\rightarrow$  " Sofia  
 $M_1$   $\rightarrow$  " Maria

$$A_0 + S_0 + M_0 = 550$$

$$2S_0 = A_0$$

$$M_1 + 50 = M_0$$

$$A_1 + S_1 + M_1 = 200$$

$$S_1 = S_0$$

$$\frac{5}{4}S_1 = A_1$$

Six Equations

Six Variables

Solve for  $S_0$

$$3S_0 + M_1 + 50 = 550$$

$$-\frac{9}{4}S_0 + M_1 = -200$$

$$\left(3 - \frac{9}{4}\right)S_0 + 10 = 300$$

$$S_0 = \frac{300}{3 - \frac{9}{4}} = 400$$

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$$S_0 = \frac{300}{3 - \frac{9}{4}} = 400$$