

Systems Word Problems: Notes

Example 2: Needs 2 equations and 2 variables

Michael and Jim are buying snacks for a party. Michael buys 2 bags of chips and 1 jar of salsa and spends \$8.90. Jim buys 4 bags of chips and 3 jars of salsa and spends \$19.70. What is the price for one bag of chips and the price for one jar of salsa?

a. Define the variables that you will use to solve this problem.

step 1:
 1.) $C = \text{price of chips}$
 2.) $J = \text{price of salsa}$

b. Write an equation to describe the price of Michael's purchase an equation to describe Jim's purchase.

step 2: Model:
 1.) $2C + 1S = 8.90$ # of chips (price: C) + # of salsa (price: S) = Total amount spent
 2.) $4C + 3S = 19.70$

c. Use any method to solve the system of equations.

$$\begin{array}{r} 2C + 1S = 8.90 \rightarrow (200C + 100S = 890) \\ 4C + 3S = 19.70 \rightarrow (400C + 300S = 1970) \\ \hline -400C - 200S = -1780 \\ 400C + 300S = 1970 \\ \hline \end{array}$$

$$\frac{100S = 190}{100} \quad \frac{100}{100}$$

$$\boxed{S = 1.90}$$

$$2C + 1(1.90) = 8.90$$

$$\begin{array}{r} 2C + 1.90 = 8.90 \\ -1.90 - 1.90 \\ \hline \end{array}$$

$$\frac{2C = 7}{2} \quad \frac{7}{2}$$

$$\boxed{C = 3.50}$$

d. State your answer to the question in a complete sentence.

The price for 1 bag of chips is \$3.50 and the price for a jar of salsa is \$1.90.