Problem 2.1 continued

C Ming and Eun Mi discuss how to solve the system. $\begin{cases} x + y = 3 \\ x - y = -5 \end{cases}$

Ming says it would be easier to solve the system by writing each equation in the equivalent form $x = ny + c$. Eun Mi says it would be easier to solve the system by writing each equation in the equivalent form $y = mx + b$. Who is correct? Explain.

ACE Homework starts on page 32.

2.2 Taco Truck Lunch

Solving Systems by Combining Equations I

In Problem 2.1, you developed strategies for solving systems of equations by writing each equation in the equivalent form $y = mx + b$ or $x = ny + c$. Then you found the solution of the system by graphing or by solving one linear equation for x or y.

In this Problem, you will learn another strategy for solving linear systems.

Pablo and Jasmine each took their brothers out for lunch. They stopped at a taco truck where the prices were not posted.

After placing their orders, they compared what they bought with the total cost for each order.

Pablo and his brother got 6 tacos and 2 drinks for $9.

- Can you use this information to find the price of one taco? Of one drink? Explain.

Jasmine and her brother got 4 tacos and 2 drinks for $7.

- Does the additional information help you find the price of one taco? Of one drink? Explain.

? What is the price of one taco and the price of one drink? Explain your reasoning.

Problem 2.2

A Pablo's younger brother Pedro used the orders and total prices to find the price of each taco and each drink.

When asked how he figured out the prices, Pedro said, "It's kind of like what we did in school with coins and pouches." Then he made the following sketch.
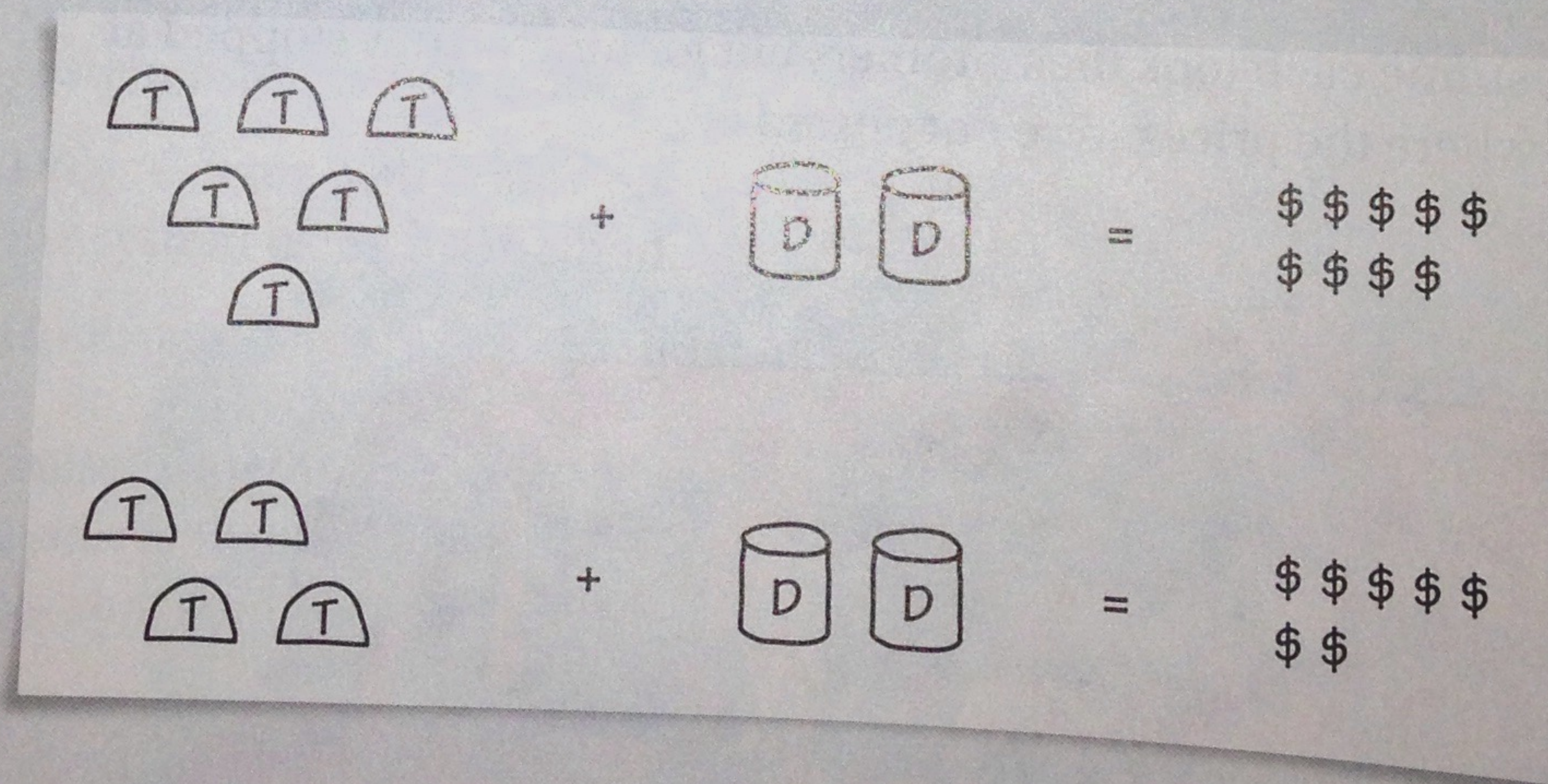
1. How does the sketch help you find the price of one taco and the price of one drink?

2. Find another way to use Pedro's sketch to solve the problem.

18. On a hot summer day, Jay set up a lemonade stand. He kept track of how many glasses he sold on his phone.

   a. Write two equations that relate the number of large glasses sold *l* and the number of small glasses sold *s*.

   b. Solve the system of equations.

   c. How many small glasses were sold?

   d. How many large glasses were sold?

> 4:45 PM
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> **My Lemonade Stand**
>
> Prices:
> $.35 for a small glass
> $.50 for a large glass
>
> Total glasses sold: 29
> Total sales: $13.45

Pablo and Jasmine decide to try some other food trucks after eating at the taco truck in Problem 2.2. For Exercises 19–22, do the following.

   a. Write two equations based on the information.

   b. Solve the system of equations to determine the price of 1 serving of food and the price of 1 drink or bag of chips.

19. Pablo buys 3 servings of jambalaya and 2 drinks for $18.00.
Jasmine buys 1 serving of jambalaya and 2 drinks for $9.00.

20. Pablo buys 4 sandwiches and 4 bags of chips for $24.00.
Jasmine buys 8 sandwiches and 4 bags of chips for $43.00.

21. Pablo buys 3 loaves of zucchini bread and 5 cups of tea for $15.00.
Jasmine buys 5 loaves of zucchini bread and 3 cups of tea for $21.00.

22. Pablo buys 6 apple pies and 2 juices for $39.00.
Jasmine buys 2 apple pies and 4 juices for $18.00.

Solve each system by using the combination method.

23. $\begin{cases} 3x - 2y = 12 \\ -3x + 8y = -6 \end{cases}$

24. $\begin{cases} 4x + 9y = 7 \\ 4x - 9y = 9 \end{cases}$

25. $\begin{cases} 12x - 14y = -8 \\ -8x - 14y = 52 \end{cases}$

26. $\begin{cases} 5x + 15y = 10 \\ 5x - 10y = -40 \end{cases}$

27. $\begin{cases} -6x - 4y = 21 \\ -6x + 3y = 0 \end{cases}$

28. $\begin{cases} 2x - 3y = 14 \\ -x + 3y = -6 \end{cases}$

29. $\begin{cases} 3x + 2y = 17 \\ -2x - y = -12 \end{cases}$

30. $\begin{cases} 4x + 3y = 18 \\ 3x + 4y = 3 \end{cases}$

31. $\begin{cases} -2x + 6y = 42 \\ 4x - 3y = -12 \end{cases}$