

Name _____ Date _____

What's For Lunch? Solving More Systems

1. Rika works in the perfume department at Hoover's Department Store. She is giving away samples of a new fragrance and a new scented hand lotion to customers that pass by her station. She is required to hand out a total of 114 samples during her shift. She has already handed out 36 samples, which represents $\frac{1}{3}$ of the number of fragrance samples and $\frac{1}{4}$ of the number of hand lotion samples that she must hand out.
 - a. Write an equation in standard form to represent the total number of samples that she must hand out. Let x represent the number of fragrance samples and let y represent the number of hand lotion samples.
 - b. Write an equation in standard form to represent the number of samples that Rika has handed out so far. Use the same variables as those used in part (a).
 - c. Write a system of linear equations that represents the problem situation.
 - d. Rewrite the equation containing fractions as an equivalent equation without fractions. Show your work.

- e. Determine the solution of the system of equations using linear combinations.
Check your answer.

- f. Interpret the solution of the linear system in terms of the problem situation.

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2. Belinda works in the kitchen department of Hoover's Department Store. As part of the store's effort to reward their customers, Belinda will be handing out coupons for two different types of silverware packages. The first coupon is for the classic set, and the second coupon is for the modern set.

On one particular day, she hands out a total of 144 coupons, which represents $\frac{1}{2}$ of the number

of classic set coupons and $\frac{3}{4}$ of the number of modern set coupons. She hands out twice as many coupons for the modern set as she does for the classic set.

- a. Write an equation in standard form to represent the total number of coupons Belinda has handed out so far. Let x represent the number of coupons for the classic set and let y represent the number of coupons for the modern set.

- b. Write an equation in standard form that represents the relationship between the numbers of coupons she hands out for each set of silverware. Use the same variables as those used in part (a).

- c. Write the system of linear equations that represents the problem situation.

d. Solve the linear system of equations using linear combinations.

e. Interpret the solution of the linear system in terms of the problem situation.