

Name: _____

Date: _____

Learning Goal 7.2	Solve systems of linear equations using substitution.
Learning Goal 7.3	Solve systems of linear equations using elimination.

Do Oreo names make sense? Which one is the better deal? Let's find out! They claim that there is three times the cream in a Mega Stuff Oreo compared to a regular Oreo. Use the nutritional information for each kind of cookie and the price for each package provided to complete this handout. Show all your work to claim your prize at the end!

Regular Oreos	Mega Stuff Oreos
1. What is the cookie composed of (wafers to cream)?	
- 2 wafers (w) - 1 part cream (c)	- 2 wafers (w) - 3 parts cream (c)
2. Write an expression to define your cookie. Make sure you define your variables.	
$2w + c$	$2w + 3c$
3. What is the weight of one cookie?	
$\frac{34 \text{ g}}{3 \text{ cookies}} = \frac{11.3 \text{ g}}{1 \text{ cookie}}$	$\frac{36 \text{ g}}{2 \text{ cookies}} = \frac{18 \text{ g}}{1 \text{ cookie}}$
4. How many calories are in one cookie?	
$\frac{160 \text{ calories}}{3 \text{ cookies}} = \frac{53.3 \text{ calories}}{1 \text{ cookie}}$	$\frac{180 \text{ calories}}{2 \text{ cookies}} = \frac{90 \text{ calories}}{1 \text{ cookie}}$
5. What is the cost of one cookie?	
$34 \times \frac{\$5.49}{500 \text{ g}} = \frac{x}{34 \text{ g}} \times 34$	$36 \times \frac{\$5.49}{374 \text{ g}} = \frac{y}{36 \text{ g}} \times 36$

$$\frac{34 \times 5.49}{500} = x$$

$$x = 0.37$$

(cost per serving)

cost per cookie
(3 cookies per serving)

$$= \frac{0.37}{3} \text{ or } 12\text{¢}$$

$$= 0.12$$

$$\frac{36 \times 5.49}{374} = y$$

$$y = 0.53$$

(cost per serving)

cost per cookie
(2 cookies per serving)

$$= \frac{0.53}{2} \text{ or } 26\text{¢}$$

$$= 0.26$$

Quiz Next Day!

Assignment

Finish this Handout!

6. What is the equation for the weight of one cookie?

$$2W + C = 11.3$$

$$2W + 3C = 18 \text{ g}$$

7. Solve the system of equations. What is the weight of the wafer? What is the weight of the filling?

By substitution

$$C = 11.3 - 2W$$

$$2W + 3(11.3 - 2W) = 18$$

$$2W + 33.9 - 6W = 18$$

$$-4W + 33.9 = 18$$

$$-4W = -15.9$$

$$W = 4.0$$

$$C = 11.3 - 2W$$

$$= 11.3 - 2(4.0)$$

$$= 11.3 - 8$$

$$= 3.3$$

The wafers weigh 4.0 g each, the regular oreo has 3.3 g of cream and the mega stuff oreo has 9.9 g of cream.

8. What is the equation for the calories of one cookie?

$$2W + C = 53.3$$

$$2W + 3C = 90$$

9. Solve the system of equations. How many calories are in the wafer? How many calories are in the filling?

By elimination:

$$2W + 3C = 90$$

$$-(2W + C = 53.3)$$

$$2C = 36.7$$

$$\frac{2C}{2} = \frac{36.7}{2}$$

$$C = 18.4$$

$$2W + C = 53.3$$

$$2W + 18.4 = 53.3$$

$$2W = 34.9$$

$$\frac{2W}{2} = \frac{34.9}{2}$$

$$W = 17.5$$

The wafers have 17.5 calories each, the regular oreo has 18.4 calories in the cream and the mega stuff oreo has 55.2 calories in the cream.

10. What is the equation for the cost of one cookie?

$$2W + C = 12$$

$$2W + 3C = 26$$

11. Solve the system of equations. What is the cost of the wafer? What is the cost of the filling?

By elimination

$$2W + C = 12$$

$$-(2W + 3C = 26)$$

$$-2C = -14$$

$$\frac{-2C}{-2} = \frac{-14}{-2}$$

$$C = 7$$

$$2W + 3(7) = 26$$

$$2W + 21 = 26$$

$$-21 \quad -21$$

$$2W = 5$$

$$\frac{2W}{2} = \frac{5}{2}$$

$$W = 2.5$$

The wafers cost 2.5¢ each, the cream of the regular oreo costs 7¢ and the cream of the mega stuff oreo costs 21¢.