Name_____

Systems of Equations

Using B for the cost of a burger, F for the cost of fries, N for the cost of nachos, and S for the cost of a soda, write equations for each statement below.

2 sodas and 3 burgers cost $18.	
5 sodas and 6 burgers cost $39.	
2 burgers, 2 fries, and 2 sodas cost $18.	
2 nachos, 3 burgers, 2 fries, and 4 sodas cost $38.	

DEFINITION: When used together, these form a _____ of equations, which is a set of two or more equations with two or more unknowns (or variables).

DEFINITION: The _____ to a system lists the values that can be used for each variable to make the equations in the system true (or, "check").

Samples:

1)
$$\begin{aligned} 2x + 3y - 4z &= -3 \\ x - z &= 4 \\ -x - 2y + 3z &= 4 \end{aligned}$$

This is a _____ _____ of equations because it uses _____ _____ and has _____ _____.

- Which of the following would be the solution to this system?

A) $x = -4,\ y = -1,\ z = 2$ B) $x = 9.5,\ y = 0,\ z = 5.5$ C) $x = 5,\ y = -3,\ z = 1$

2)
$$\begin{aligned} 2x - 7y &= 9 \\ y &= \tfrac{1}{2}x - 3 \end{aligned}$$

This is a _____ _____ of equations because it uses _____ _____ and has _____ _____.

- Which ordered pair shows the solution to this system?

A) (15, 3) B) (8, 1) C) (2, -2)

Below, circle the correct solution to each equation. How can you determine the solution?

3)
$$\begin{aligned} y &= 3x - 8 \\ x &= 4y - 1 \end{aligned}$$

A) $x = 3,\ y = 1$
B) $x = -7,\ y = -29$
C) $x = 7,\ y = -9$

4)
$$\begin{aligned} 5x + 3y + 2z &= 16 \\ x + y + 5 &= z \\ 8x + 5y + 3z &= 25 \end{aligned}$$

A) (1, -0.2, 5.8)
B) (-2, 4, 7)
C) (1, 1, 4)

These answers are called "ordered triples"

Plug into the System

Evaluate each equation for the given values in the ordered triple. If the values "check" in the equation, then shade in the corresponding box. When all items are complete, the remaining boxes (which have not been shaded) will spell out a quote. Be sure to check each solution set for each equation. The equation will have more than one set that works.

1) System of Equations:	(-2, 3, -3)	(2, 6, -4)	(3, 4, -9)	(1, 5, 1)
$3x + 2y + z = 14$	IFT	HER	HEY	EAS
$-2x + y - 5z = 22$	ONT	ONY	GIV	EYO
$4x - 3y + 2z = -18$	URU	LIN	GER	LED

- Which ordered triple is the solution to the system? _____

2) System of Equations:	(3,9,-2)	(-3, 4, 5)	(1, 5, -4)	(5, 1, 1)
$2x + y - 4z = 23$	SYS	PAPE	TEMP	RWR
$9x + 4z = -7$	ITET	HERL	UTNA	HEO
$x + 6y + 4z = 15$	THE	RWAY	THY	OUSE

- Which ordered triple is the solution to the system? _____

Place the remaining letters (from left to right) in the blanks.

_____ _____ _____ _____ _____ _____

_____ _____ _____ _____ .

—Juan Ramon Jimenez