Why Does the President Put Vegetables in His Blender?

Solve each system of equations below by the substitution method. Find the solution in the nearest answer column and notice the two letters next to it. Print these letters in the two boxes at the bottom of the page that contain the number of that exercise.

Answers 1–6:

(4, 2)	LD
(6, −1)	NG
(1, 2)	TR
(4, 8)	HE
(1, −3)	HO
(6, −3)	NT
(5, 3)	FO
(9, 2)	PI
(7, 3)	TH
(5, 2)	IS

1. $y = 2x$, $x + y = 12$ (4, 8)
2. $x = 3y - 1$, $x + 2y = 9$ (5, 2)
3. $y = 2x - 5$, $4x - y = 7$ (1, −3)
4. $2x - 3y = 12$, $x = 4y + 1$ (9, 2)
5. $y = -x + 5$, $x - 4y = 10$ (6, −1)
6. $x - y = 2$, $4x - 3y = 11$ (5, 3)
7. $-2x + 3y = 14$, $x + 2y = 7$ (−1, 4)
8. $6x - y = -4$, $2x + 2y = 15$ ($\frac{1}{2}$, 7)
9. $x + y = 1$, $2x - y = -2$ ($-\frac{1}{3}, \frac{4}{3}$)
10. $5x - 3y = -11$, $x - 2y = 2$ (−4, −3)
11. $x - y = 3$, $6x + 4y = 13$ ($\frac{5}{2}, -\frac{1}{2}$)
12. $2x - y = 16$, $-x + 2y = -8$ (8, 0)

Answers 7–12:

$\left(\frac{1}{2}, -3\right)$	IN
$\left(8, -\frac{1}{2}\right)$	VE
$\left(-\frac{1}{3}, \frac{4}{3}\right)$	RL
(8, 0)	AS
(−3, 4)	TE
$\left(\frac{1}{2}, 7\right)$	HI
$\left(\frac{5}{2}, \frac{4}{3}\right)$	LO
(−1, 4)	RW
$\left(\frac{5}{2}, -\frac{1}{2}\right)$	PE
(−4, −3)	ED

1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12
H	E	I	S	H	O	P	I	N	G	F	O	R	W	H	I	R	L	E	D	P	E	A	S

World Peace

President + Veges.

(1) $y = 2x$

$x + y = 12$

$x + 2x = 12$

$\frac{3x}{3} = \frac{12}{3}$

$\boxed{x = 4}$

$y = 2x$

$= 2(4)$

$\boxed{y = 8}$

$(4, 8)$

(2) $x = 3y - 1$

$x + 2y = 9$

$3y - 1 + 2y = 9$

$5y - 1 = 9$

$+1 \quad +1$

$\frac{5y}{5} = \frac{10}{5}$

$\boxed{y = 2}$

$x = 3y - 1$

$= 3(2) - 1$

$= 6 - 1$

$\boxed{x = 5}$

$(5, 2)$

(3) $y = 2x - 5$

$4x - y = 7$

$4x - (2x - 5) = 7$

$4x - 2x + 5 = 7$

$2x + 5 = 7$

$\quad -5 \quad -5$

$\frac{2x}{2} = \frac{2}{2}$

$\boxed{x = 1}$

$y = 2x - 5$

$= 2(1) - 5$

$= 2 - 5$

$\boxed{y = -3}$

$(1, -3)$

(4) $x = 4y + 1$

$2x - 3y = 12$

$2(4y + 1) - 3y = 12$

$8y + 2 - 3y = 12$

$5y + 2 = 12$

$\quad -2 \quad -2$

$\frac{5y}{5} = \frac{10}{5}$

$y = 2$

$x = 4y + 1$

$= 4(2) + 1$

$= 8 + 1$

$= 9$

$(9, 2)$

(5) $y = -x + 5$

$x - 4y = 10$

$x - 4(-x+5) = 10$

$x + 4x - 20 = 10$

$5x - 20 = 10$

$\quad +20 \quad +20$

$\frac{5x}{5} = \frac{30}{5}$

$\boxed{x = 6}$

$y = -x + 5$

$= -6 + 5$

$\boxed{y = -1}$

$(6, -1)$

(6) $x - y = 2$

$\quad +y \quad +y$

$x = 2 + y$

$4x - 3y = 11$

$4(2+y) - 3y = 11$

$8 + 4y - 3y = 11$

$8 + y = 11$

$-8 \qquad -8$

$y = 3$

$\boxed{y = 3}$

$x = 2 + y$

$= 2 + 3$

$x = 5$

$(5, 3)$

7) $x+2y=7$

$-2y \quad -2y$

$x=7-2y$

$-2x+3y=14$

$-2(7-2y)+3y=14$

$-14+4y+3y=14$

$-14+7y=14$

$+14 \quad +14$

$\frac{7y}{7}=\frac{28}{7}$

$\boxed{y=4.}$

$x=7-2y$

$=7-2(4)$

$=7-8$

$\boxed{x=-1}$

$(-1,4)$

8) $6x-y=-4$

$-6x \quad -6x$

$\frac{-y}{-1}=\frac{-6x}{-1}\frac{-4}{-1}$

$y=6x+4$

$2x+2y=15$

$2x+2(6x+4)=15$

$2x+12x+8=15$

$14x+8=15$

$-8 \quad -8$

$\frac{14x}{14}=\frac{7}{14}$

$\boxed{x=\frac{1}{2}}$

$y=6x+4$

$=6(\frac{1}{2})+4$

$=3+4$

$\boxed{y=7}$

$(\frac{1}{2},7)$

(8)

$$x+y=1$$
$$-x \quad -x$$
$$y=1-x$$

$$2x-y=-2$$
$$2x-(1-x)=-2$$
$$2x-1+x=-2$$
$$3x-1=-2$$
$$+1 \quad +1$$
$$\frac{3x}{3}=\frac{-1}{3}$$
$$\boxed{x=-1/3}$$

$$y=1-x$$
$$=1-(-1/3)$$
$$=1+1/3$$
$$\boxed{y=4/3}$$

$(-1/3, 4/3)$

(10)

$$x-2y=2$$
$$+2y \quad +2y$$
$$x=2+2y$$

$$5x-3y=-11$$
$$5(2+2y)-3y=-11$$
$$10+10y-3y=-11$$
$$10+7y=-11$$
$$-10 \quad -10$$
$$\frac{7y}{7}=\frac{-21}{7}$$
$$\boxed{y=-3}$$

$$x=2+2y$$
$$=2+2(-3)$$
$$=2-6$$
$$x=-4$$

$(-4, -3)$

(11)

$x - y = 3$

$+y \quad +y$

$x = 3 + y$

$6x + 4y = 13$

$6(3+y) + 4y = 13$

$18 + 6y + 4y = 13$

$18 + 10y = 13$

$-18 \qquad -18$

$\frac{10y}{10} = \frac{-5}{10}$

$y = -\frac{1}{2}$

$x = 3 + y$

$= 3 - \frac{1}{2}$

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

$\left(\frac{5}{2}, -\frac{1}{2}\right)$

(12)

$2x - y = 16$

$-2x \qquad -2x$

$\frac{-y}{-1} = \frac{16 - 2x}{-1}$

$y = -16 + 2x$

$-x + 2y = -8$

$-x + 2(-16 + 2x) = -8$

$-x - 32 + 4x = -8$

$-32 + 3x = -8$

$+32 \qquad +32$

$\frac{3x}{3} = \frac{24}{3}$

$x = 8$

$y = -16 + 2x$

$= -16 + 2(8)$

$= -16 + 16$

$y = 0$

$(8, 0)$