Day 5 – Solving Systems Using Elimination (Multiplying) – Practice

Directions: Solve each system using elimination. Write your solution as an ordered pair unless the system has no or infinite solutions.

1. $2x + y = 9$
$-2(x + 2y = 12)$

$2x + y = 9$
$-2x - 4y = -24$
$-3y = -15$
$y = 5$
$2x + 5 = 9$
$2x = 4$
$x = 2$

Solution: $(2, 5)$

2. $-2(x + y = 6)$
$2x + y = 8$

$-2x - 2y = -12$
$2x + y = 8$
$-y = -4$
$y = 4$
$x + 4 = 6$
$x = 2$

Solution: $(2, 4)$

3. $-3x + 2y = -12$
$3(x + 2y = -4)$

$-3x + 2y = -12$
$3x + 6y = -12$
$8y = -24$
$y = -3$
$x + 2(-3) = -4$
$x - 6 = -4$
$x = 2$

Solution: $(2, -3)$

4. $12x + 4y = -20$
$-2(6x + 2y = -10)$

$12x + 4y = -20$
$-12x - 4y = 20$
$0 = 0$

Solution: Infinite Solutions

5. $5(4x - 7y = 1)$
$4(-5x + 9y = -1)$

$20x - 35y = 5$
$-20x + 36y = -4$
$y = 1$
$4x - 7(1) = 1$
$4x - 7 = 1$
$4x = 8$
$x = 2$

Solution: $(2, 1)$

6. $4(-3x - 5y = -4)$
$3(4x + 9y = -4)$

$-12x - 20y = -16$
$12x + 27y = -12$
$7y = -28$
$y = -4$
$4x + 9(-4) = -4$
$4x - 36 = -4$
$4x = 32$
$x = 8$

Solution: $(8, -4)$

7. $-2(-3x + 3y = 1)$ → $6x - 6y = -2$
$3(-2x + 2y = -4)$ → $-6x + 6y = -12$

$0 \neq -14$

Solution: No Solution

8. $4(-7x - 5y = -19)$ → $-28x - 20y = -76$
$7(4x - 2y = -28)$ → $28x - 14y = -196$

$-34y = -272$

$y = 8$

$4x - 2(8) = -28$

$4x - 16 = -28$

$4x = -12$

$x = -3$

Solution: $(-3, 8)$

9. $2(-7x + 6y = -6)$ → $-14x + 12y = -12$
$7(2x - 8y = 8)$ → $14x - 56y = 56$

$-44y = 44$

$y = -1$

$2x - 8(-1) = 8$

$2x + 8 = 8$

$2x = 0$

$x = 0$

Solution: $(0, -1)$

10. $-4(12x + 6y = 6)$ → $-48x - 24y = -24$
$6(8x + 4y = 4)$ → $48x + 24y = 24$

$0 = 0$

Solution: Infinite Solutions