Name _____ Date _____

Substitution and Elimination

Substitution

$x + y = 7,\ x - y = 1$

$x = 1 + y$

$1 + y + y = 7 \rightarrow y = 3$

$x = 1 + 3 = 4$

$(4, 3)$

Elimination

$x + y = 7$

$x - y = 1\ +$

$2x = 8 \rightarrow x = 4$

$4 + y = 7 \rightarrow y = 3$

$(4, 3)$

Remember

Substitution: write one unknown in terms of the other from one equation and substitute it into the other. **Elimination**: multiply the equations so that one unknown has opposite coefficients, then add them. Always check the solution in **both** equations.

1 ON YOUR OWN Solve by substitution.

$y = 2x - 3$
$3x + y = 7$

_____

_____

_____

$(x, y) =$ ☐

$x - 2y = 1$
$2x + 3y = 9$

_____

_____

_____

$(x, y) =$ ☐

Names (pair) _____ Date _____

2 ON YOUR OWN Solve by elimination.

$2x + 3y = 12$
$4x - 3y = 6$

$(x, y) =$ ☐

$3x + 2y = 7$
$5x - 4y = 19$

$(x, y) =$ ☐

3 IN PAIRS One of you uses substitution and the other elimination: $2x + y = 5$, $3x - 2y = 4$. Compare. Which method is quicker here?

4 ON YOUR OWN First get rid of the fractions.

$\frac{x}{2} + \frac{y}{3} = 3,\ x - y = 1 \rightarrow (x, y) =$ ☐

5 IN PAIRS **Cinema.** Two child tickets and one adult ticket cost 16 €, and one child ticket and two adult tickets cost 20 €. How much is each ticket?

System: ☐ child ☐ €, adult ☐ €

★ ON YOUR OWN **Exit card.** $x + y = 10, x - y = 4 \rightarrow (x, y) =$ ☐