

Systems of Equations

8th Grade

Two lines, three methods, and what it means when there is no answer.

The solution to a system is the point that satisfies both equations — where the two lines cross.

solve by graphing, substitution or elimination

$$y = 2x + 1 \text{ and } 3x + y = 11$$

(2, 5)

Substitution — y is already alone.

$$2x + 3y = 12 \text{ and } 2x - y = 4$$

(3, 2)

Elimination — the $2x$ terms match.

Parallel lines

no solution

Same slope, different intercept. They never meet.

Identical lines

infinite solutions

Same slope, same intercept.

THE COMMON MISTAKE

✗ solving for x and stopping

✓ give both x and y

The solution is a point. One number is only half an answer.

Always substitute your point back into BOTH equations. One is not a check.