LESSON MAKER PRO

Equation Matchup

Solve systems by finding the pair that makes both equations true.

GRADE 8 · 8.EE.C.8

CCSS.Math.Content.8.EE.C.8 "Analyze and solve pairs of simultaneous linear equations."

NAME _____ DATE _____

ELIMINATE A VARIABLE

A solution to a system is an x-value and y-value that make both equations true. You can add or subtract the equations to eliminate one variable, then substitute to find the other variable. Check your pair in both original equations.

WORKED EXAMPLE

Solve the system: $x + y = 11$ and $x - y = 5$.

1. Add the equations: $2x = 16$.
2. Divide by 2: $x = 8$.
3. Substitute into $x + y = 11$: $8 + y = 11$, so $y = 3$.
4. Check: $8 + 3 = 11$ and $8 - 3 = 5$.

Answer: x = 8, y = 3

PRACTICE 6 problems

1 Solve the system: $x + y = 14$ and $x - y = 6$.

ANSWER _____

2 Solve the system: $4x + y = 30$ and $x + y = 12$.

ANSWER _____

3 Solve the system: $x = 6y + 4$ and $4x + y = 41$.

ANSWER _____

4 Solve the system: $y = 7x - 9$ and $6x + y = 43$.

ANSWER _____

5 How many solutions does this system have? $6x + 4y = 20$ and $9x + 6y = 30$.

ANSWER _____

6 How many solutions does this system have? $7x + 4y = 18$ and $14x + 8y = 37$.

ANSWER _____

APPLY IT Show your work

1 At a movie theater, 4 student tickets and 7 adult tickets cost $78. On another visit, 6 student tickets and 4 adult tickets cost $78. What is the price of one student ticket and one adult ticket?

WORK SPACE

ANSWER _____

2 For an online gaming event, a club buys 9 basic passes and 6 premium passes for $87. Another group buys 4 basic passes and 7 premium passes for $56. What is the price of each type of pass?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Solve the system, then explain how multiplying the equations can help you eliminate y: $4x + 7y = 73$ and $9x + 4y = 82$.

WORK SPACE AND ANSWER

ANSWER KEY

Equation Matchup

GRADE 8 · 8.EE.C.8

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve the system: x + y = 14 and x - y = 6.	**x = 10, y = 4**
2	Solve the system: 4x + y = 30 and x + y = 12.	**x = 6, y = 6**
3	Solve the system: x = 6y + 4 and 4x + y = 41.	**x = 10, y = 1**
4	Solve the system: y = 7x - 9 and 6x + y = 43.	**x = 4, y = 19**
5	How many solutions does this system have? 6x + 4y = 20 and 9x + 6y = 30.	**Infinitely many solutions**
6	How many solutions does this system have? 7x + 4y = 18 and 14x + 8y = 37.	**No solution**

PART 2 · APPLY IT

1. **Student ticket: $9. Adult ticket: $6.** Let s be the student ticket price and a be the adult ticket price. Solve 4s + 7a = 78 and 6s + 4a = 78 to get s = 9 and a = 6.
2. **Basic pass: $7. Premium pass: $4.** Let b be the basic pass price and p be the premium pass price. Solve 9b + 6p = 87 and 4b + 7p = 56 to get b = 7 and p = 4.

CHALLENGE

x = 6, y = 7. Multiplying the first equation by 4 and the second equation by 7 makes both y-coefficients 28, so subtraction eliminates y.

Accept solutions written as ordered pairs or as separate x- and y-values. For the last two practice problems, accept equivalent wording such as “all real-number pairs on the same line” for infinitely many solutions and “parallel lines” for no solution.