

Equation Matchup

Solve equations alone and in pairs.

GRADE 8 • 8.EE.C

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

NAME _____

DATE _____

BALANCE AND COMBINE

For one linear equation, use inverse operations to get the variable alone while keeping both sides balanced. For a system, use substitution or elimination to find values that make both equations true, then check both values.

WORKED EXAMPLE

Solve the system: $x + y = 23$ and $x - y = 7$

1. Add the equations: $2x = 30$.
2. Divide by 2: $x = 15$.
3. Substitute $x = 15$ into $x + y = 23$: $15 + y = 23$.
4. Subtract 15: $y = 8$.

Answer: $x = 15, y = 8$

PRACTICE 6 problems

1 Solve: $6x - 5 = 31$

ANSWER _____

2 Solve: $3(x + 4) = 27$

ANSWER _____

3 Solve: $x/4 + 6 = 11$

ANSWER _____

4 Solve the system: $x + y = 14$ and $x - y = 4$

ANSWER _____

5 Solve the system: $2x + y = 17$ and $x + y = 11$

ANSWER _____

6 Solve the system: $y = 3x - 2$ and $x + y = 14$

ANSWER _____

APPLY IT Show your work

- 1** At a school concert, 10 tickets were sold. General tickets cost \$9 and VIP tickets cost \$13. Total sales were \$110. How many general tickets and VIP tickets were sold?

WORK SPACE

ANSWER _____

- 2** A playlist for a dance has 18 tracks. Each track is either 3 minutes or 5 minutes long, and the playlist lasts 66 minutes. How many tracks are each length?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Solve the system. Show why adding the equations is useful: $3x + 2y = 26$ and $5x - 2y = 22$

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Solve: $6x - 5 = 31$	$x = 6$
2	Solve: $3(x + 4) = 27$	$x = 5$
3	Solve: $x/4 + 6 = 11$	$x = 20$
4	Solve the system: $x + y = 14$ and $x - y = 4$	$x = 9, y = 5$
5	Solve the system: $2x + y = 17$ and $x + y = 11$	$x = 6, y = 5$
6	Solve the system: $y = 3x - 2$ and $x + y = 14$	$x = 4, y = 10$

PART 2 • APPLY IT

- 5 general tickets and 5 VIP tickets** Let g be general tickets and v be VIP tickets. Solve $g + v = 10$ and $9g + 13v = 110$ to get $g = 5$ and $v = 5$.
- 12 three-minute tracks and 6 five-minute tracks** Let s be the number of three-minute tracks and f be the number of five-minute tracks. Solve $s + f = 18$ and $3s + 5f = 66$ to get $s = 12$ and $f = 6$.

CHALLENGE

Adding the equations cancels y and gives $8x = 48$, so $x = 6$. Substituting gives $y = 4$.

Accept correct x and y values in either stated order when they are clearly labeled. Accept equivalent algebraic work and correctly labeled word-problem answers.