LESSON MAKER PRO

Where Lines Meet

Solve systems by graphing.

GRADE 8 · 8.EE.8b

8.EE.8b "Analyze and solve pairs of simultaneous linear equations. Solve systems of two linear equations in two variables with integer solutions by graphing the equations."

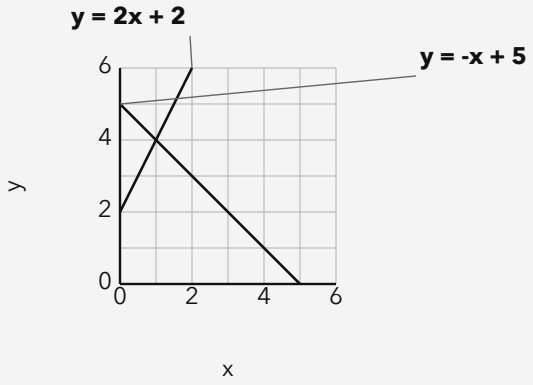
NAME _____ DATE _____

THE BIG IDEA

Each equation makes a line. Graph both lines on the same coordinate plane. The point where they cross satisfies both equations.

WORKED EXAMPLE

Use the graph to solve y = 2x + 2 and y = -x + 5.



1. On the first line, find (0, 2) and (1, 4).
2. On the second line, find (0, 5) and (1, 4).
3. The lines cross at (1, 4).

Answer: (1, 4)

PRACTICE 4 problems

1 Graph both equations. Where do they cross? y = x - 1 and y = -x + 5

ANSWER _____

2 Graph both equations. Where do they cross? y = 2x - 3 and y = -x + 6

ANSWER _____

3 Graph both equations. Where do they cross? y = -x + 2 and y = x + 6

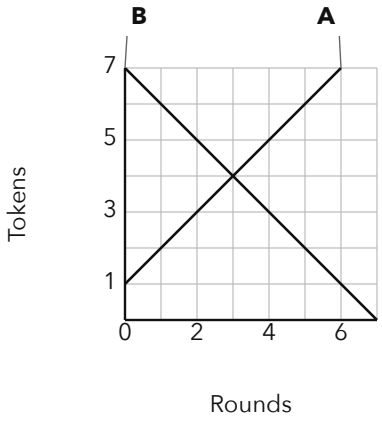
ANSWER _____

4 Graph both equations. Where do they cross? y = -2x + 8 and y = x + 2

ANSWER _____

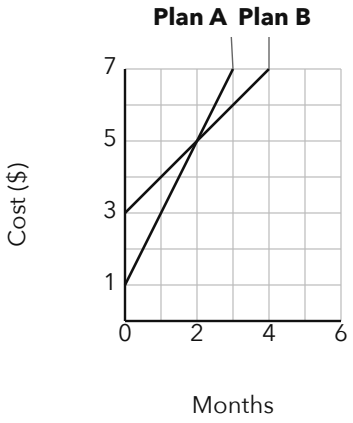
APPLY IT Show your work

1 A and B have game tokens. The graph shows their totals after each round. After how many rounds do they have the same total, and how many tokens does each have?



ANSWER _____

2 The graph shows the total cost of two music plans. After how many months do they cost the same, and what is the cost?



ANSWER _____

CHALLENGE One step up

Graph y = 2x + 5 and y = -x - 4. State where the lines cross, then explain how you checked the point.

WORK SPACE AND ANSWER

ANSWER KEY

Where Lines Meet

GRADE 8 · 8.EE.8b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Graph both equations. Where do they cross? y = x - 1 and y = -x + 5	**(3, 2)**
2	Graph both equations. Where do they cross? y = 2x - 3 and y = -x + 6	**(3, 3)**
3	Graph both equations. Where do they cross? y = -x + 2 and y = x + 6	**(-2, 4)**
4	Graph both equations. Where do they cross? y = -2x + 8 and y = x + 2	**(2, 4)**

PART 2 · APPLY IT

1. **After 3 rounds, each has 4 tokens.** The lines intersect at (3, 4). Read 3 on the rounds axis and 4 on the tokens axis.
2. **After 2 months, each plan costs $5.** The lines intersect at (2, 5). Read 2 on the months axis and 5 on the cost axis.

CHALLENGE

The lines cross at (-3, -1). When x = -3, both equations give y = -1.

Accept an ordered pair for each practice problem. For the challenge, accept any explanation that checks the point in both equations.