LESSON MAKER PRO

Where Lines Meet

Solve systems by graphing or substitution.

GRADE 8 · 8.AT.B.5.b

8.AT.B.5.b "Solve systems of two linear equations by graphing and substitution. When using graphing, find an approximate or exact solution depending on the precision of the graph..."

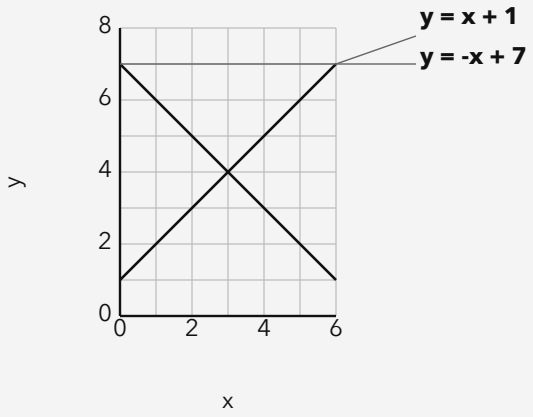
NAME _____ DATE _____

CHOOSE A METHOD

The solution to a system makes both equations true. On a graph, read the point where the lines cross, estimating if it falls between marks. If an equation already gives you y or x, substitution may be quicker.

WORKED EXAMPLE

Where do the lines meet?



1. Find where the lines cross.
2. Read x = 3 and y = 4.

Answer: (3, 4)

PRACTICE 4 problems

1 Solve by substitution: y = 3x - 1 and y = x + 5.

ANSWER _____

2 Solve by substitution: x = y + 1 and 2x + y = 11.

ANSWER _____

3 Solve by substitution: y = -2x + 6 and y = x.

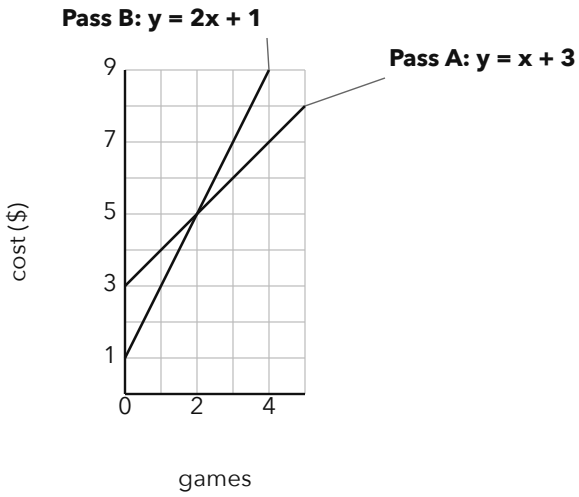
ANSWER _____

4 Solve by substitution: 3x + y = 17 and y = x + 1.

ANSWER _____

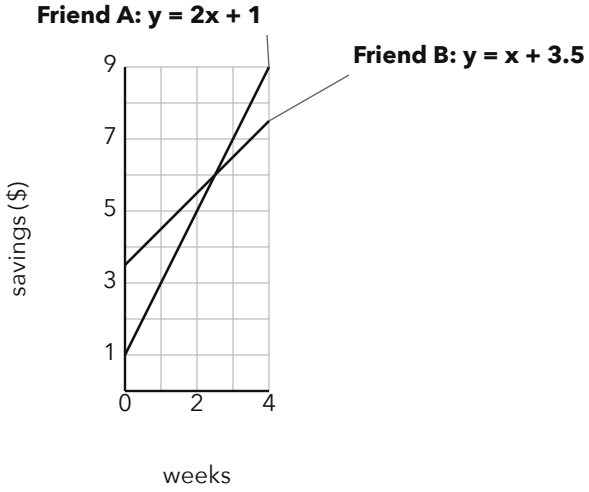
APPLY IT Show your work

1 The graph shows the cost of two arcade passes. At how many games do they cost the same, and what is the cost?



ANSWER _____

2 The graph shows two friends' savings. About when will they have the same amount, and about how much will each have?



ANSWER _____

CHALLENGE One step up

Solve 5x + 2y = 18 and y = 4 - x. Which method is quicker here? Explain why.

WORK SPACE AND ANSWER

ANSWER KEY

Where Lines Meet

GRADE 8 · 8.AT.B.5.b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve by substitution: y = 3x - 1 and y = x + 5.	**(3, 8)**
2	Solve by substitution: x = y + 1 and 2x + y = 11.	**(4, 3)**
3	Solve by substitution: y = -2x + 6 and y = x.	**(2, 2)**
4	Solve by substitution: 3x + y = 17 and y = x + 1.	**(4, 5)**

PART 2 · APPLY IT

1. **2 games; $5** The lines cross at (2, 5). Graphing shows both the number of games and the matching cost.
2. **About 2.5 weeks; about $6 each** The lines cross at (2.5, 6). An estimate is appropriate because the crossing falls between week marks.

CHALLENGE

(10/3, 2/3). Substitution is quicker because one equation already gives y.

Accept equivalent fractions in the challenge. For graph answers, accept estimates consistent with where the printed lines cross.