LESSON MAKER PRO

Where Graphs Meet

Find solutions from intersections and graph positions.

GRADE 8 · 8A.AF.G

8A.AF.G "Graphs can be used to obtain exact or approximate solutions of equations, inequalities, and systems of equations and inequalities – including systems of linear equations in two variables and systems of linear and quadratic equations (given..."

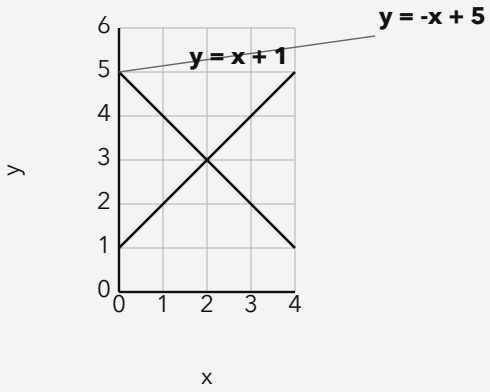
NAME _____ DATE _____

THE BIG IDEA

Where two graphs cross, they have the same x and y values. Read the crossing point to solve both equations. To solve an inequality, find where one graph is above the other.

WORKED EXAMPLE

Where do the two graphs meet?



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

Answer: (2, 3)

PRACTICE 4 problems

1 Where do y = 2x and y = -x + 3 meet?

ANSWER _____

2 Where do y = 3x and y = x + 8 meet?

ANSWER _____

3 Where do y = 2x + 3 and y = 7 meet?

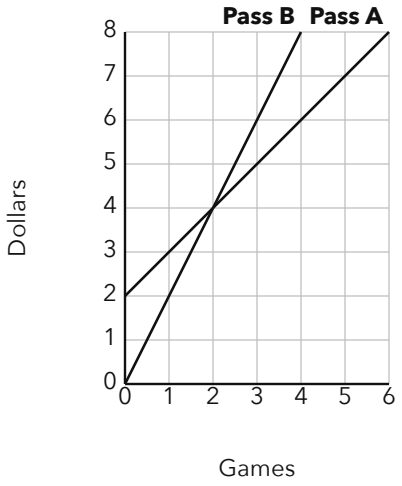
ANSWER _____

4 For which x-values is y = 2x + 1 above y = x + 5?

ANSWER _____

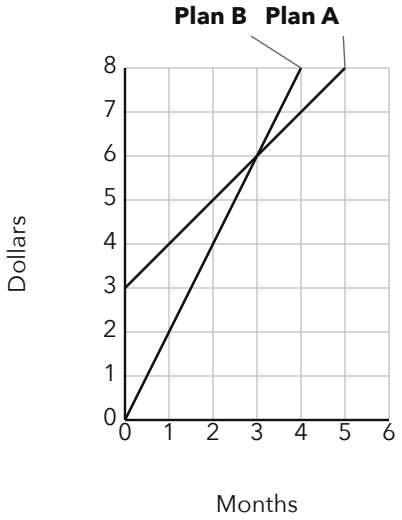
APPLY IT Show your work

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 _____

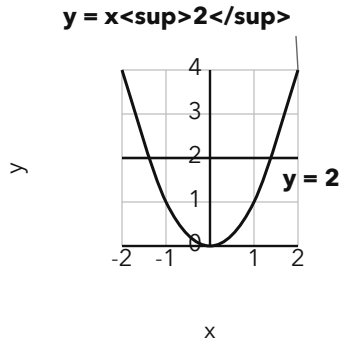
2 The graph shows the cost of two music plans. At how many months do they cost the same, and what is the cost?



ANSWER _____

CHALLENGE One step up

Use the graph to estimate both solutions of $x^2 = 2$ to the nearest tenth.



WORK SPACE AND ANSWER

ANSWER KEY

Where Graphs Meet

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Where do y = 2x and y = -x + 3 meet?	**(1, 2)**
2	Where do y = 3x and y = x + 8 meet?	**(4, 12)**
3	Where do y = 2x + 3 and y = 7 meet?	**(2, 7)**
4	For which x-values is y = 2x + 1 above y = x + 5?	**x > 4**

PART 2 · APPLY IT

1. **2 games, $4** The lines cross at (2, 4).
2. **3 months, $6** The lines cross at (3, 6).

CHALLENGE

x ≈ -1.4 and x ≈ 1.4

Accept ordered pairs for intersections and equivalent wording for graph-based answers. The challenge estimates are rounded to the nearest tenth.