

Practice

STAMS[®]
series H

Solve[™] STAMS[®]

Data Analysis and Probability

Geometry and Measurement

Algebra



TABLE OF CONTENTS

Practices

Expressions and Equations

1	Exponents	5
2	Square Roots	9
3	Solve Two-Step Equations	13
4	Two-Step Equations with Rational Numbers	17

Review 1	Practices 1 and 2	21
Review 2	Practices 3 and 4	23

5	Linear and Nonlinear Equations	25
6	Slope	29
7	Graph Linear Equations	33
8	Solve Systems Graphically	37

Review 3	Practices 5 and 6	41
Review 4	Practices 7 and 8	43

9	Solve Systems Algebraically	45
----------	---------------------------------------	----

Plane Geometry

10	Special Pairs of Angles	49
11	Angle Sums	53
12	Triangle Similarity	57

Review 5	Practice 9	61
Review 6	Practices 10–12	63

Linear Measurement and Area

13	Pythagorean Theorem	65
14	Distance Formula	69

Statistics

15	Mean, Median, Range	73
-----------	---------------------	----

Graphs

16	Scatter Plots	77
-----------	---------------	----

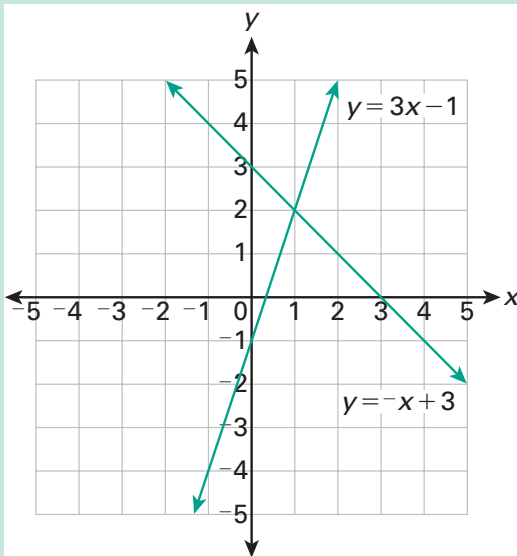
Review 7	Practices 13 and 14	81
Review 8	Practices 15 and 16	83

Glossary		85
-----------------	--	----

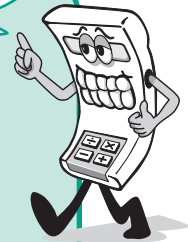
SOLVE SYSTEMS GRAPHICALLY

Use the graph to solve the problem.

- The graph shows a **system of linear equations**, $y = -x + 3$ and $y = 3x - 1$. Find the solution to the system from the graphs.



Let's solve this together.



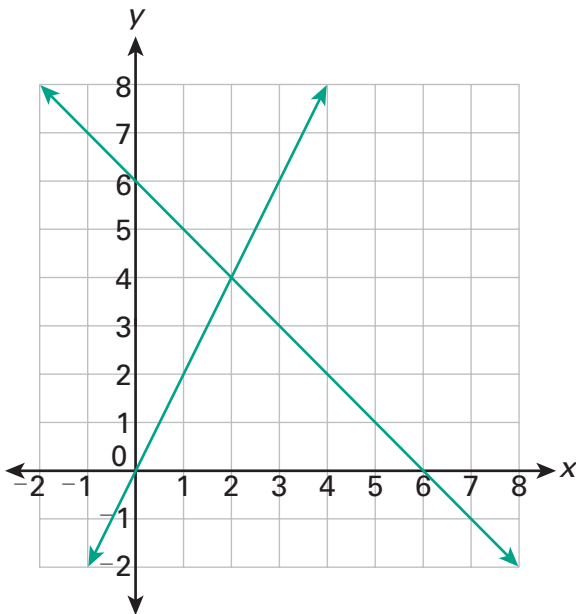
Solutions to $y = -x + 3$ include $(-1, \underline{\hspace{1cm}})$ and $(\underline{\hspace{1cm}}, 1)$.

Solutions to $y = 3x - 1$ include $(-1, \underline{\hspace{1cm}})$ and $(\underline{\hspace{1cm}}, 5)$.

Both equations have the solution $(\underline{\hspace{1cm}})$.

The solution of the system is $(\underline{\hspace{1cm}})$.

Use this graph for numbers 2–5. Solve each problem.



- Find each equation from the y -intercepts and the slopes.
Solution: _____
- Using the graph, find the solution to the system.
Solution: _____
- The x and y values in the system represent the lengths of two boards cut from a 6-foot board. What does $y = 2x$ mean?
Solution: _____

- Explain why there is only one solution to a system of **intersecting lines**.
Solution: _____

Solve each problem. Choose the best answer.

6. What can you say about the statement *two lines with the same y-intercept are parallel*?

- Ⓐ never true
- Ⓑ true when the intercept is (0, 0)
- Ⓒ sometimes true
- Ⓓ always true

7. Which ordered pair is the solution to the system of equations $y = -2x + 5$ and $y = x - 4$?

- Ⓐ (-3, 9)
- Ⓑ (-1, 1)
- Ⓒ (3, -1)
- Ⓓ (3, 9)

Solve each problem.

8. Write an equation for a line with a slope of $\frac{1}{2}$ and a y-intercept of 3. Write a second equation for a line with a slope of $\frac{2}{3}$ and a y-intercept of 3. If these two equations were graphed on the same coordinate grid, what would be the solution to the system? Explain your answer.

First equation: _____

Second equation: _____

Solution to the system _____

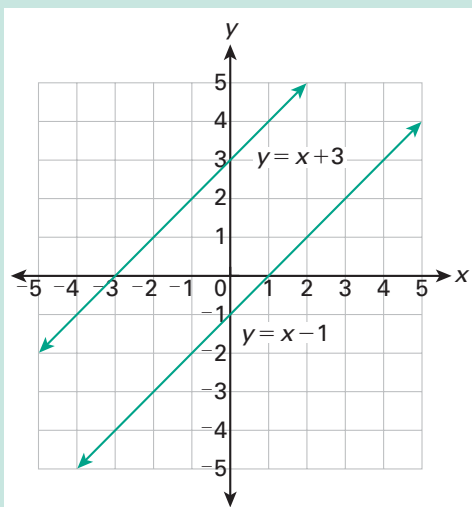
9. Write a system of equations that has a solution of (2, 0).

10. A system of equations is graphed. The solution to the system is (3, 4). One equation is $y = x + 1$. With this information is there only one equation that could be in the system? Explain your answer.

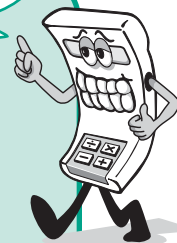
SOLVE SYSTEMS GRAPHICALLY

Use the graph to solve the problem.

- The graph shows a system of equations, $y = x + 3$ and $y = x - 1$. Find the solution to the system.



Let's solve this together.



Solutions to $y = x + 3$ include $(-1, \underline{\quad})$, $(\underline{\quad}, 1)$.

Solutions to $y = x - 1$ include $(-1, \underline{\quad})$, $(\underline{\quad}, 3)$.

The lines are _____ and have _____ points in common, so there _____ solution.

Use the graph for numbers 2 and 3. Solve each problem.

- Use the y -intercepts and slopes to write an equation for each line.

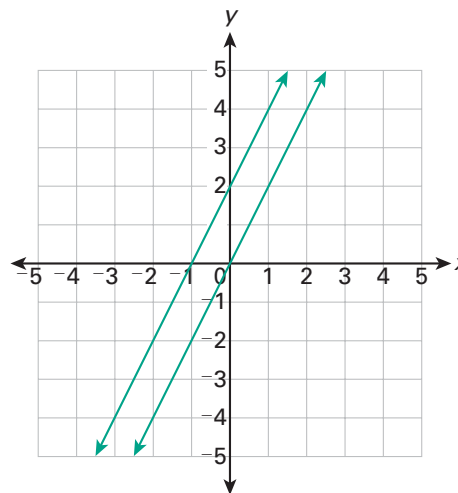
Solution: _____

- Using the graph, find the solution to the system.

Solution: _____

- Consider the system $y = 4(x + 1)$ and $y = 4x + 4$. Find the solution.

Solution: _____



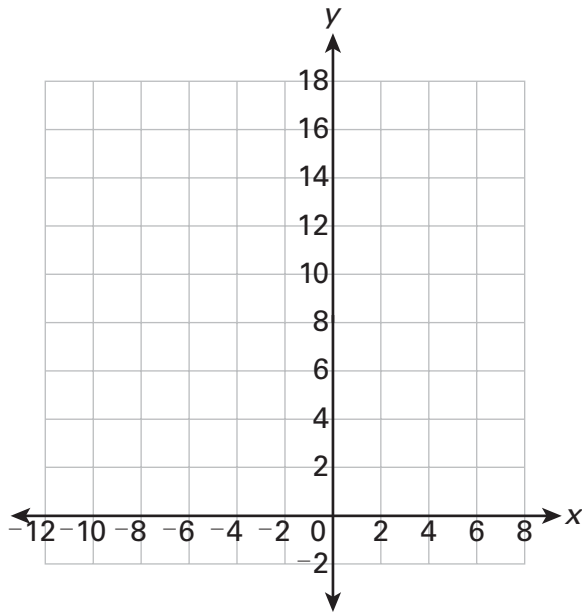
- Use mental math to find the solution to the system $y = -2$ and $x = 5$.

Solution: _____

Solve each problem. Choose the best answer or write the solution.

6. If a system of equations has a solution, the slopes of the two equations are
- Ⓐ the same. Ⓒ different.
 Ⓑ both negative. Ⓓ both positive.

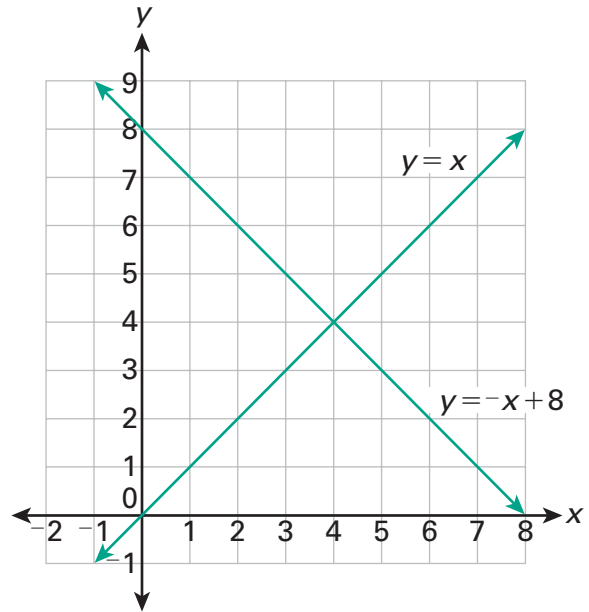
7. Graph the equations $y = -x + 12$ and $y = x + 8$ to find two numbers whose sum is 12 and whose difference is 8.



Solution: The numbers are

_____.

8. A triangle is defined by the y -axis and the equations as shown in the graph below. Write the coordinate pair for each vertex of the triangle. How do the vertices relate to the solution of a system of equations?



Vertex 1: (0, _____) Vertex 3: _____

Vertex 2: (_____, 4)

Reasoning

Solve each problem. Explain your thinking.

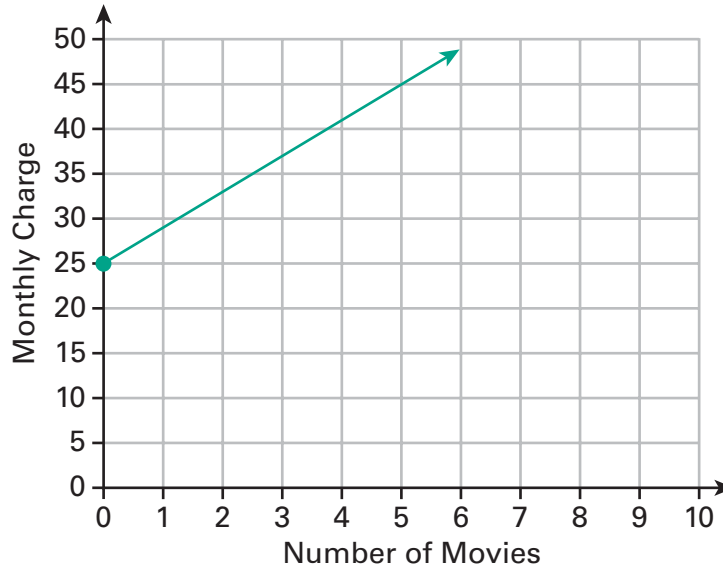
9. Write a system of equations that has no solution. Explain why.

10. There are three possible types of graphs for a system of equations. Name the three types and the solution(s) that result in each.

REVIEW 4: PRACTICES 7 AND 8

Use this information for numbers 1–5. Solve each problem.

The graph shows how the monthly cost of cable television (y) changes. The plan has a \$4 charge per movie and a monthly charge of \$25.



1. What is the y -intercept, and what does it mean to the problem?

Solution: _____

2. From the graph, find the cost for a month when five movies are ordered.

Solution: _____

3. Find the slope of the equation. How does the charge per movie relate to the slope of the equation?

Solution: _____

4. What is the equation represented by the graph?

Solution: _____

5. If the monthly charge increases from \$25 to \$28, how will the graph change?

Solution: _____

Solve each problem. Choose the best answer.

6. Which ordered pair is a solution to the system of equations $y = 2x + 1$ and $y = -x + 7$?

- (A) $(-5, 1)$ (C) $(1, 6)$
(B) $(0, 5)$ (D) $(2, 5)$

7. At $t = 0$, Ted is 50 feet away from school. He arrives at school 10 seconds later. Which equation relates distance from school to time?

- (A) $50 = 10t$ (C) $50 = 10r$
(B) $r = 50t$ (D) $d = 50t$

Reasoning

Solve each problem. Explain your thinking.

8. Many systems of equations compare the cost for using one company to the cost for using a different company. Why is the solution to this system referred to as the break-even point? How can you use this solution to decide between the two companies?

9. What is the solution to a system of two proportions?

10. Slope is found differently within a table, a graph, and an equation. Explain each method.

GLOSSARY

MY EXAMPLES

B b

base

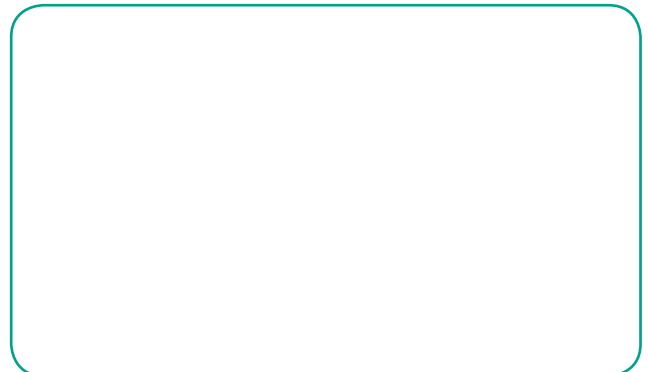
in a power, the number that is multiplied by itself



C c

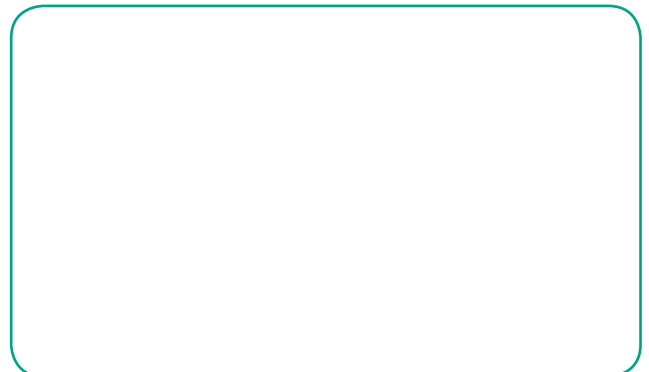
coefficient

a number that is multiplied by a variable



coinciding lines

lines that lie on top of each other



corresponding angles (of figures)

angles in the relative same position within different figures

