Unit 11 Review

Solving Equations and Systems

Name_____
Date_____
Period_____

Show your work. Circle your final answer.

HOW TO USE THIS. This review covers every learning target of Lessons 11.01–11.08 — more than the test does. Work it in parts. If you miss two or more in a part, that part is where to spend your study time. The reference sheet has everything you need for each part.

Solving Equations

Lessons 11.01–11.04 · 8 questions

1. Solve. Check your solution in the first equation.

a. $6x - 2x + 7 = 31$

b. $4(2n + 1) - 3n = 29$

c. $20 - 4(w - 3) = 8$

2. Solve. Check your solution in both sides.

a. $8m - 5 = 3m + 20$

b. $2h + 15 = 7h + 40$

c. $6(v - 1) = 2(v + 9)$

3. Solve.

a. $0.3(10x-20)=x+8$

b. $\frac{1}{4}(8x+12)=x+9$

c. $\frac{x}{4}+3=\frac{x}{2}-2$

d. $-0.4(5x-10)=x+2.5$

e. $-\frac{3}{4}(4x-8)=x+1$

4. What number goes in the box so that $5(x+2)-x=4x+\square$ has infinitely many solutions?

5. A pottery studio has two plans. Plan A costs \$45 to join and \$8 a class. Plan B costs \$13 a class. For how many classes do the two plans cost the same?

6. Each equation has one solution, no solution or infinitely many solutions. Mark one box in each row.

	one solution	no solution	infinitely many
a. $4(x + 3) = 4x + 12$	☐	☐	☐
b. $6x - 1 = 6x + 4$	☐	☐	☐
c. $8x + 5 = 3x + 5$	☐	☐	☐

a. $4(x+3)=4x+12$

b. $6x-1=6x+4$

c. $8x+5=3x+5$

7. Solve each equation. If it has no solution or infinitely many solutions, say so.

a. $4(x-2)=x+7$

b. $4(x-2)=6x+2$

c. $4(x-2)=4x+8$

d. $4(x-2)=4x-8$

8. Gym A costs \$36 to join and \$4 a visit. Gym B costs \$10 a visit. Answer each part.

a. Dana has paid Gym A \$64 in all. How many visits has she made?

b. After how many visits have the two gyms cost the same?

c. Is $(5, 56)$ a solution of the system $y = 4x + 36$ and $y = 10x$?

d. Gym C costs \$50 to join and \$4 a visit. Will Gym A and Gym C ever have cost the same? Explain.

Solutions of a System

Lessons 11.05–11.06 · 3 questions

9. Is the ordered pair a solution of the system? Show both checks.

a. $(3, 10)$; $y = 3x + 1$ and $y = x + 7$

b. $(-2, 5)$; $y = -2x + 1$ and $y = x + 6$

c. $(8, 3)$; $y = \frac{1}{2}x - 1$ and $y = -x + 11$

10. Select all the systems that have $(-1, 3)$ as a solution.

- ☐ A. $y = x + 4$ and $y = -2x + 1$
- ☐ B. $y = -x + 2$ and $y = 3x + 6$
- ☐ C. $y = 2x + 5$ and $y = x + 3$
- ☐ D. $y = -3x$ and $y = x + 4$
- ☐ E. $y = 4x + 7$ and $y = -x + 1$

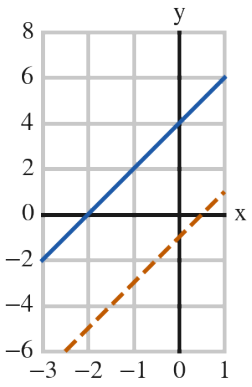
11. $(\square, 9)$ is a solution of $y = 2x + 3$ and $y = 4x - 3$. What number goes in the box?

How Many Solutions a System Has

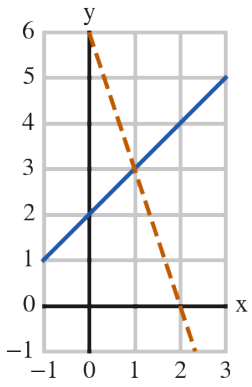
Lessons 11.05–11.06 · 5 questions

12. Each picture shows a system. How many solutions does each system have?

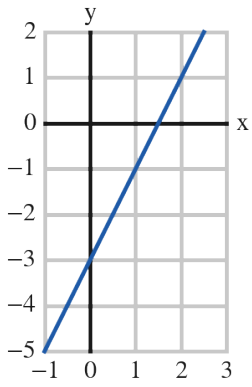
a



b



c



a. $y = 2x + 4$ and $y = 2x - 1$

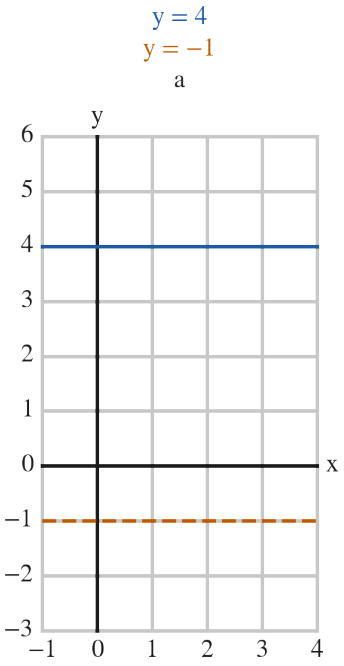
b. $y = x + 2$ and $y = -3x + 6$

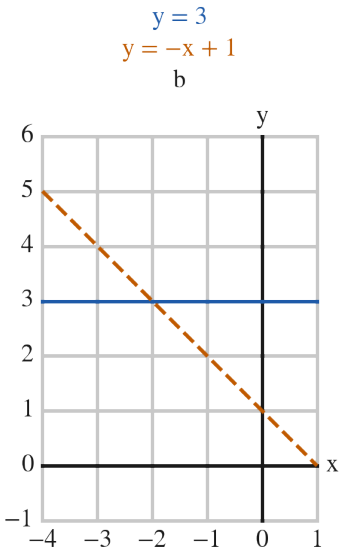
c. $y = 2(x - 2) + 1$ and $y = 2x - 3$ (both graph as the one line shown)

13. Which system has infinitely many solutions?

- ○ A. $y = 3x + 6$ and $y = 3x - 6$
- ○ B. $y = 3x + 6$ and $y = -3x + 6$
- ○ C. $y = 3x + 6$ and $y = 3(x + 2)$
- ○ D. $y = 3x + 6$ and $y = 6x + 3$

14. Each picture shows a system with a level line. How many solutions does each system have?





a. $y = 4$ and $y = -1$

b. $y = 3$ and $y = -x + 1$

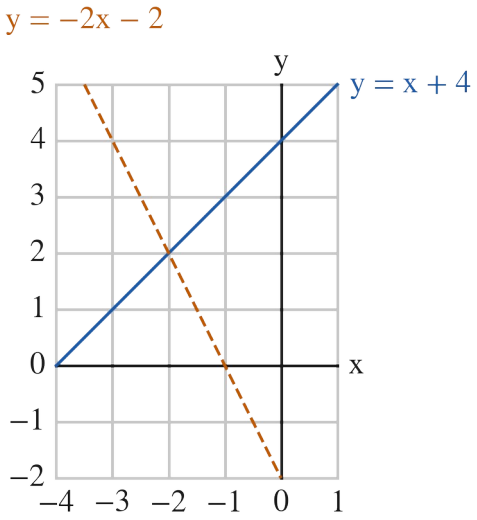
15. Complete the sentence about the system $y = -3x + 2$ and $y = -3x - 4$. The lines [intersect once / are parallel / are the same line], so the system has [one solution / no solution / infinitely many solutions].

16. Without graphing: how many solutions does the system $y = 5x - 2$ and $y = 5x + 1$ have? How do you know?

Solving Systems by Graphing

Lessons 11.07–11.08 · 6 questions

17. The system $y = x + 4$ and $y = -2x - 2$ is graphed. What is its solution?



18. The tables are for $y = 3x - 6$ and $y = x + 2$. What is the solution of the system?

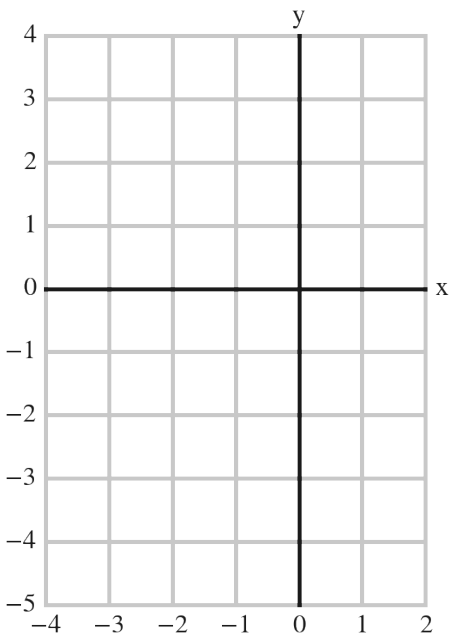
y = 3x − 6

x	0	1	2	3	4	5
y	−6	−3	0	3	6	9

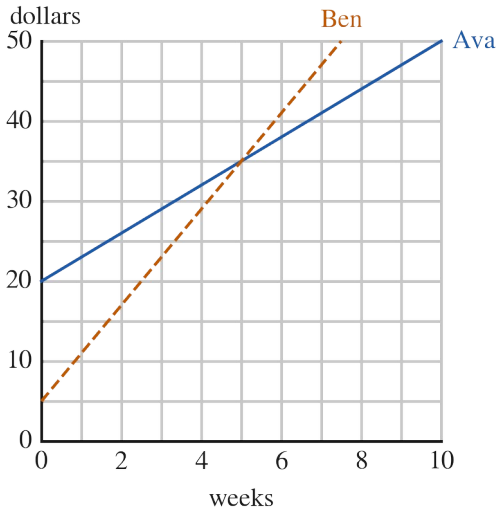
y = x + 2

x	0	1	2	3	4	5
y	2	3	4	5	6	7

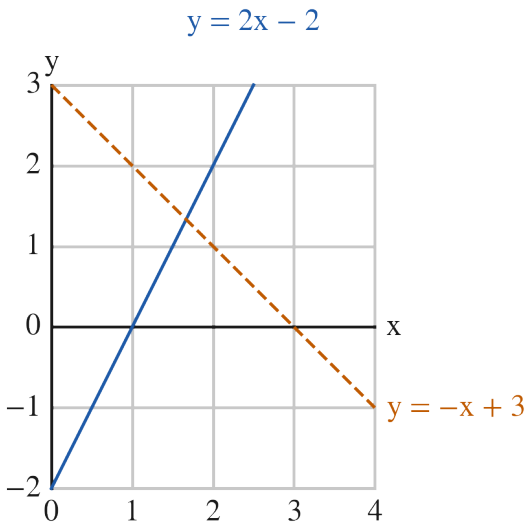
19. Graph both lines on the grid and solve the system: $y = x + 1$ and $y = -x - 3$



20. Ava has $20 and saves $3 a week. Ben has $5 and saves $6 a week. The graph shows the dollars y each has after x weeks. When will they have the same amount, and how much will each have?



21. The system $y = 2x - 2$ and $y = -x + 3$ is graphed. Estimate its point of intersection to the nearest tenth.



22. Two plans cost the same for 5 months: $y = 7x + 25$ and $y = \square x$. What number goes in the box?