FOMP 10 Chapter 8 Review Pack v1

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Level 1-2 Questions

____ **1.** Identify the linear system to which the ordered pair $(3, 0)$ is a solution.

    a. $2x + y = 7$ **c.** $3x + 4y = 8$
        $x + 2y = 4$ $2x + 5y = 5$

    b. $2x + 3y = 6$ **d.** $3x + 2y = 8$
        $3x + 2y = 9$ $x + 2y = 4$

____ **2.** Which of the following linear systems has the ordered pair $(-1, -1)$ as a solution?

    a. $3x + 2y = -4$ **c.** $8x + y = -9$
        $5x + y = -5$ $14x - 12y = -3$

    b. $7x + 2y = -9$ **d.** $8x - 2y = -7$
        $2x + 7y = -9$ $6x + y = -7$

Short Answer

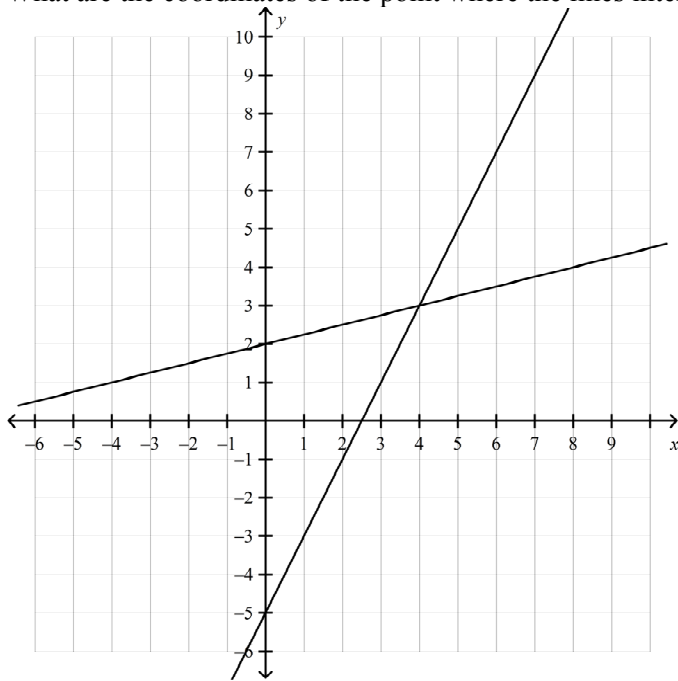### Level 1-2 Questions

1. What ordered pair is a solution to the linear system $y = -2x$ and $y = 4x$?

2. What is the point of intersection of the linear system $x = -4$ and $y = -3$?

3. Determine how many solutions there are to the following linear system.
$y = 4x + 5$
$y = 5x - 4$

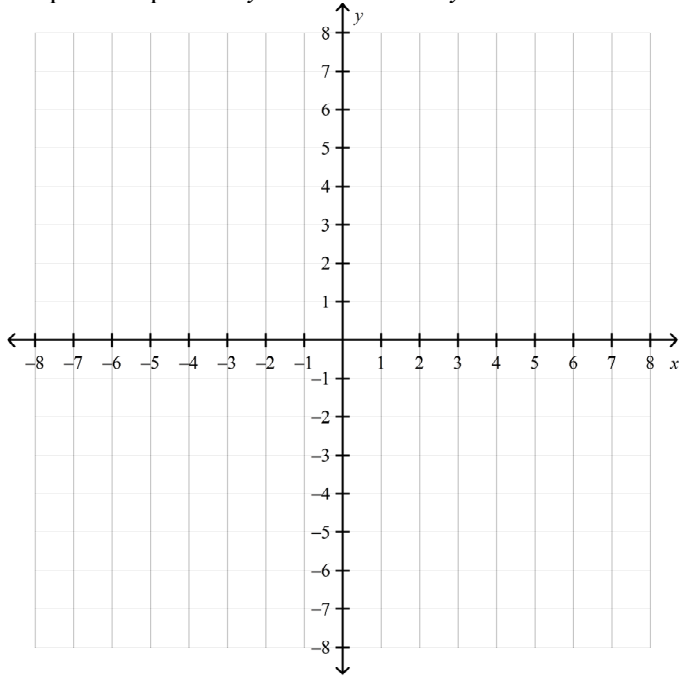**4.** What are the coordinates of the point where the lines intersect?

Level 3-4 Questions

5. What is the solution to the linear system $5x + 2y = 0$ and $2x + 2y = -6$?

6. Graph the equations $y = x - 7$ and $x + y = 1$ and determine the point of intersection.

7. Translate the following sentence into an equation: "three added to two times a number is four less than four times the number."
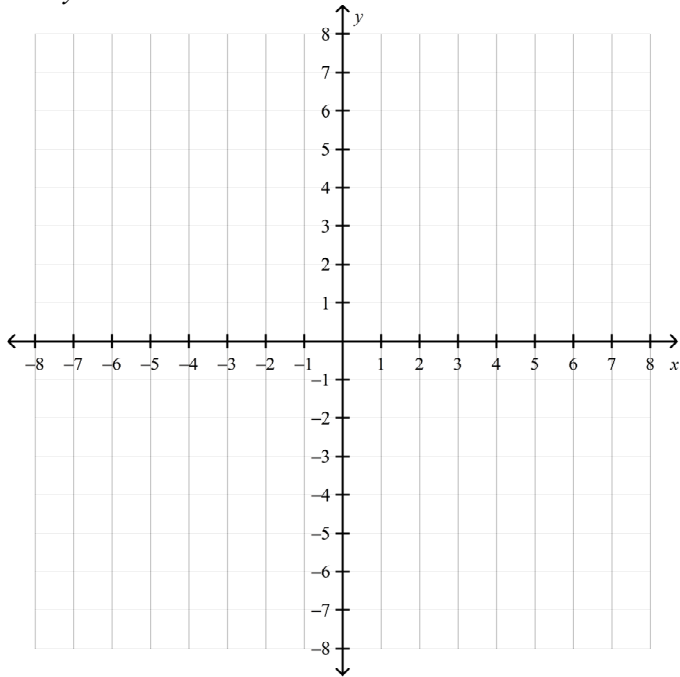
8. Solve the following linear system graphically.
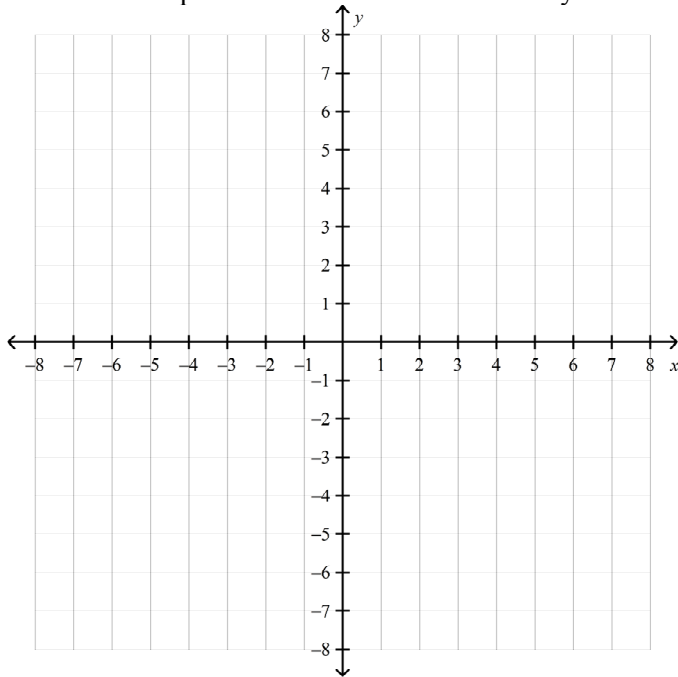$y = 3$
$2x + y = 2$

9. Express the following statement as an equation: "five times a number less five is one fifth of six times the number."

10. Determine the point of intersection of the lines $y = -2x + (1)$ and $y = -x + (3)$ by graphing.

11. NV Fitness Club charges a flat fee of $15 per month plus $8 per visit. CG Workout Zone charges a flat fee of $25 per month plus $5 per visit. Let x represent the number of visits per month and let y represent the total cost per month, in dollars.
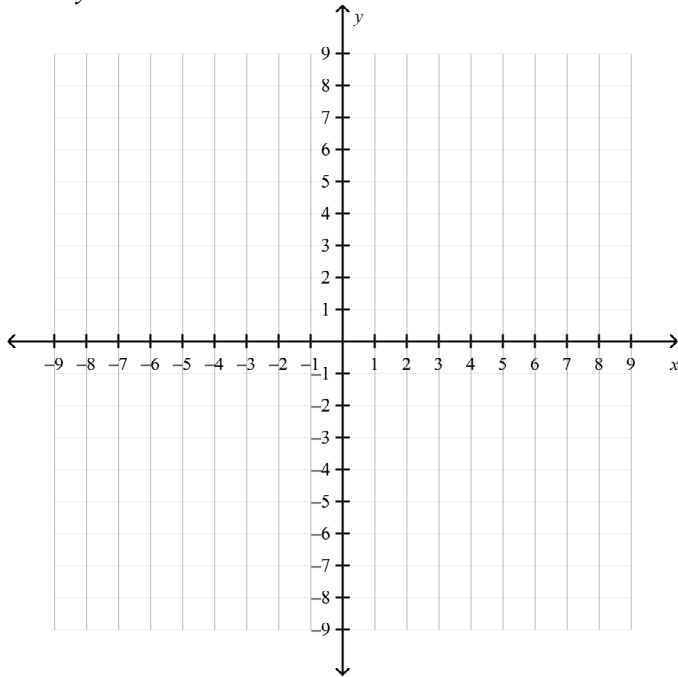What system of linear equations represents this situation?

12. Using a graph, determine the number of solutions for the following linear system.
$y = 2x - 4$
$6x - 3y - 12 = 0$

13. How many solutions are there for the linear system $4x - 5y = -1$ and $4x + 5y = 8$?

14. Translate each phrase into an algebraic expression.
a) five less than five times a number
b) two more than a third a number
c) a number decreased by one, times another number
d) a value increased by the fraction four sevenths

15. Express each statement as an algebraic equation.
    a) One fifth of a number, decreased by 14, is 33.
    b) four times a number, subtracted from six, is two more than six times the number.
    c) When tickets to a play cost $7 each, the revenue at the box office is $959.
    d) The sum of the length and width of a backyard pool is 225 m.

Level 5-6 Questions

16. If the following system has no solution, what must the value of a be?
$y = -5x + 2$
$3y + ax = 5$

17. If the following linear system has an infinite number of solutions, what is the value of B?
$y = -5x + 3$
$By + 25x - 15 = 0$

18. Determine the equation of a line in the form $y = mx + b$ that together with the equation $x + 4y = 20$ forms a linear system that has no solution.

19. Identify the equation of a line in the form $y = mx + b$ that together with the equation $54x + 9y = -135$ forms a linear system with an infinite number of solutions.

20. Patty plans to hire a clown for her child's birthday party. Party Planners charges $20 for decorations plus $12 per hour for the clown. Fun Times Inc. charges $32 for decorations plus $9 per hour for the clown. Let C represent the total cost and n represent the number of hours the clown stays at the party.

a) Write an equation to represent the total cost for the party from Party Planners.

b) Write an equation to represent the total cost for the party from Fun Times Inc.

c) Graph the two lines in parts a) and b) on the same grid.

d) Explain what the point of intersection represents.

e) Use the graph to help you decide when you would hire Party Planners and when you would hire Fun Times Inc.
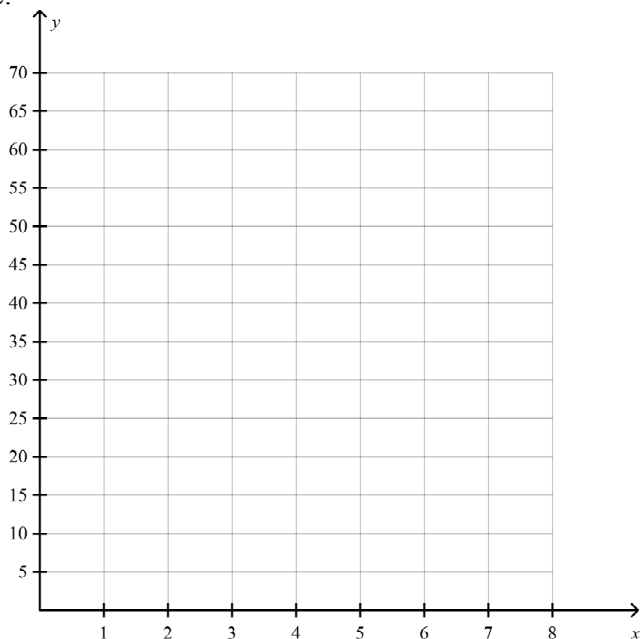
21. Lee has $207 and would like to buy 12 books as gifts. A paperback book costs $12 and a hardcover costs $21. Using a graph, determine the number of each kind of book that Lee should buy to spend all of his $207.
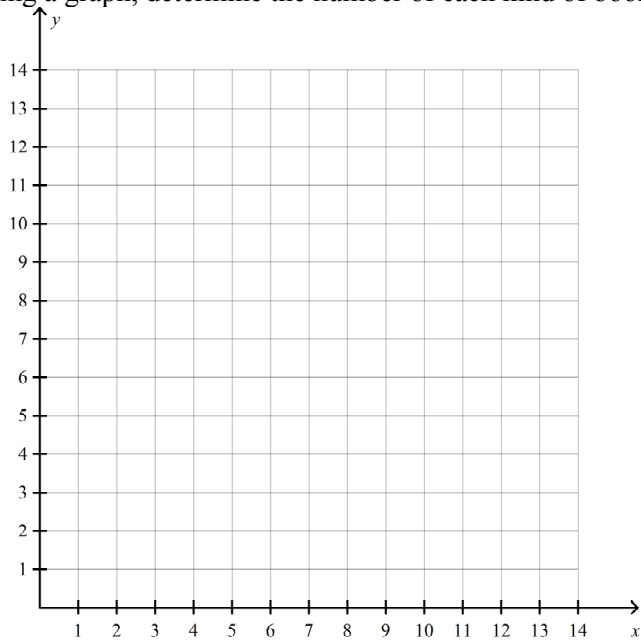
22. The school chess club is selling T-shirts for a profit of $4 each and baseball caps for a profit of $7 each. The club wants to sell 50 items and make a profit of $275.
a) Use a graph to determine how many of each item the chess club needs to sell.
b) The chess club needs $425 to fund a tournament. The club would like to sell all 35 of the remaining caps to fund the tournament. How many T-shirts must the club sell?
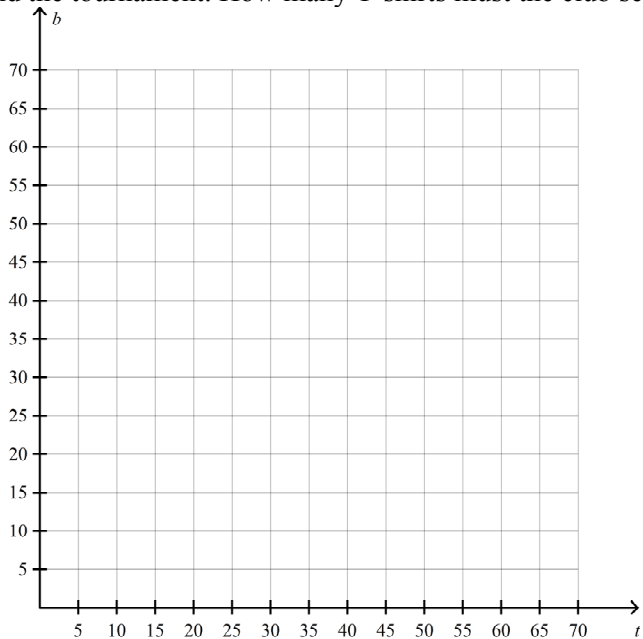
23. For a school reunion, students sell T-shirts. The cost of the T-shirts includes an $330 design and set-up charge, plus $4 per T-shirt. The T-shirts sell for $10 each. The cost and revenue can be represented by the following system of linear equations, where t represents the number of T-shirts, and d represents the amounts of money, in dollars.

Dollar Cost: $d = 330 + 4t$

Dollar Revenue: $d = 10t$

The solution of the linear system is the break-even point, the dollar amount at which the costs and revenues are equal. How many T-shirts must the students sell to break even?
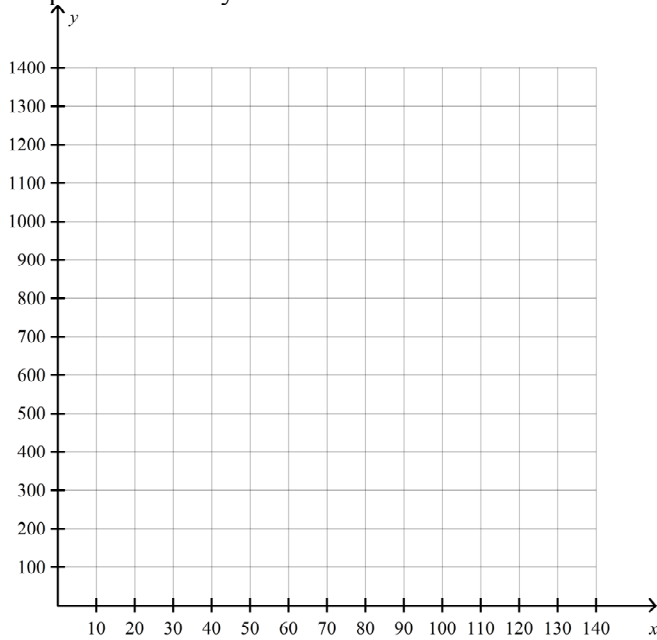
24. All 29 members of the Carson Graham ski club went to Grouse Mountain. Members can rent skis for $41 per day or snowboards for $49 per day. The club paid a total of $1381 for rental equipment.
a) Write a linear system that represents the number of members who rented the two types of equipment.
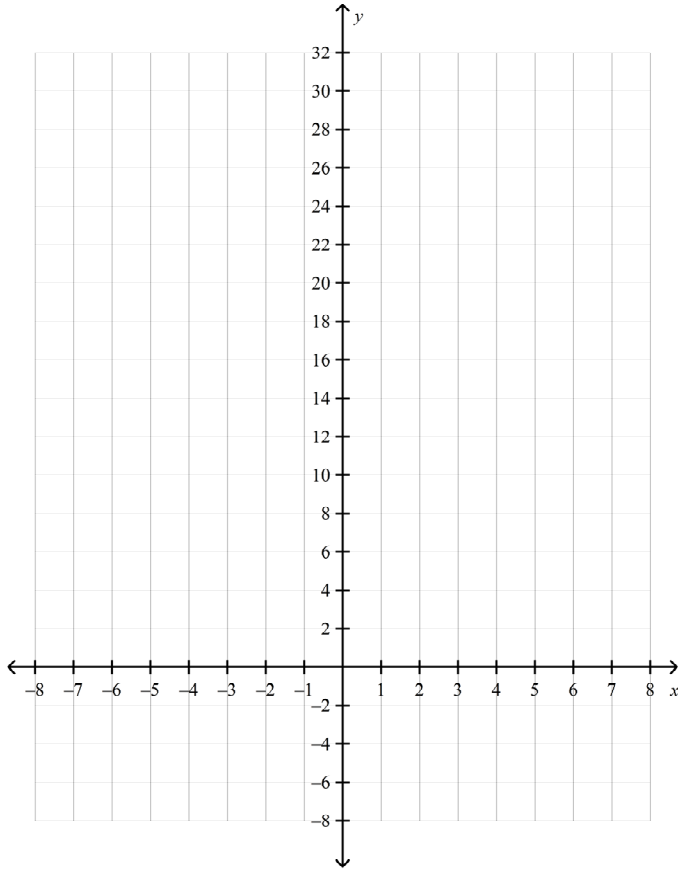**b)** How many members rented skis, and how many rented snowboards?
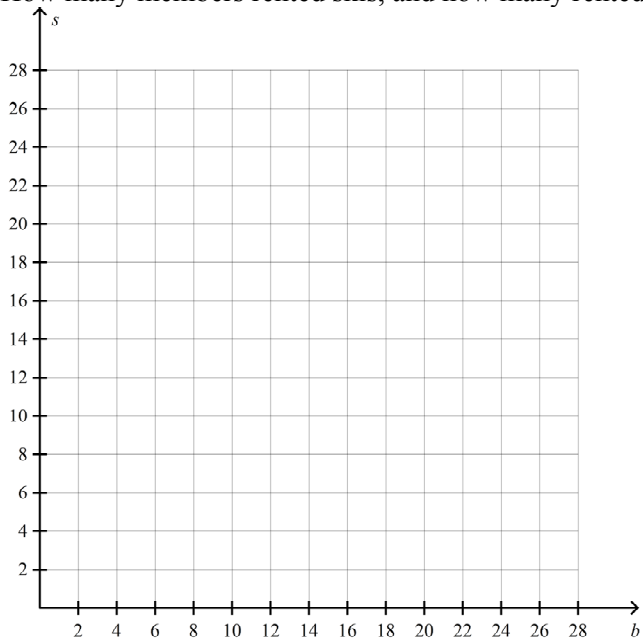
Level 7-8 Questions

25. Solve the following system of equations graphically.

$y = 2x + (14)$

$y = \dfrac{x^2}{2} - 2$

26. Rondell charges $8 per hour to cut grass and Janet charges $11 per hour to rake leaves. Rondell also charges a flat rate of $9 to cover his travel costs to each job. One day, Rondell and Janet both start and finish work at the same time. They both earn the same amount of money.
a) How long did they work, and how much did they earn?
b) Erica charges $13 per hour to plant flowers. If Erica also works for the same amount of time as Rondell and Janet in part a), how much more money does she earn than Janet does?