Algebra 2 Summer Packet

Please complete each question and SHOW ALL YOUR WORK. This will be due the first week of school. If you need help with these problems, please reach out or better yet, come to math camp!

1. What is the value of the expression $8w + 5$ when $w = 2$?

2. What is the value of the expression $10w + 10x$ when $w = 8$ and $x = 6$?

3. What is the value of the expression $6w + 10$ when $w = 9$?

4. What is the value of the expression $8z^2 - 8z + 2$ when $z = 2$?

5. What is the value of the expression $y^2 - y + 6$ when $y = 3$?

6. Which expression is equivalent to $a - 9a + 3$?

A. $a - 6$ B. $-11a$

C. $-8a + 3$ D. $-5a$

7. Which expression is equivalent to $5b + 7 - 9b + 3$?

A. $-4b + 4$ B. $14b + 10$

C. $-4b + 10$ D. $14b + 4$

8. Which expression is equivalent to $u - u - 9u$?

A. $-9u$ B. $u - 10$

C. $11u$ D. $1 - 10u$

9. Write an equivalent expression by distributing the "$-$" sign outside the parentheses:

$$-(-3t - 4.8u - 9)$$

10. Write an equivalent expression by distributing the "$-$" sign outside the parentheses:

$$-(0.1k + 2)$$

11. Write an equivalent expression by distributing the "$-$" sign outside the parentheses:

$$-(8.7f + 2g - 2)$$

12. Use the distributive property to write an equivalent expression.

$$2(v + 6w)$$

13. Use the distributive property to write an equivalent expression.

$$7(q - 4r + 1)$$

14. Rewrite in simplest terms:
$$(-2x - 8) + (-8x - 6)$$

15. Find an expression which represents the sum of $(5x - 3y)$ and $(9x + 6y)$ in simplest terms.

16. Solve for b.
$$3b - 39 = -78$$

17. Solve for b.
$$10b + 18 = 28$$

18. Solve for z.

$$-6 + 3z = 6$$

19. Solve for b.

$$42 = 42 + 9b$$

20. Solve for c.

$$-40 = -5c - 25$$

21. Solve for z.

$$24 + \frac{z}{10} = 31$$

22. Solve for c.

$$-6c + 36 = -48$$

23. Solve for y.

$$\frac{y}{5} - 34 = -22$$

24. Use the distributive property to write an equivalent expression.

$$6(q + 7r)$$

25. Use the distributive property to write an equivalent expression.

$$5(r + 3)$$

26. Use the distributive property to write an equivalent expression.

$$5(6v + 10)$$

27. Rewrite in simplest terms:

$-5(6m + 3) - 7(-7m + 7)$

28. Which expression is equivalent to the expression below?

$$6(5v) + 4v$$

A. $30v + 5v^2$ B. $34v$

C. $9v + 6$ D. $29v$

29. Which expression is equivalent to the expression below?

$$7(8y) + 3y$$

A. $77y$ B. $59y$

C. $56y + 8y^2$ D. $11y + 7$

30. Solve for x.

$$-43 = \frac{x}{5} - 47$$

31. Solve for c.

$$\frac{4}{5}c + 15 = 59$$

32. Solve for a.

$$\frac{1}{2}a + 19 = 35$$

33. Solve for a.

$$9 = -\frac{7}{10}a - 12$$

34. Solve for x:

$$3x + 3 = -2x - 17$$

35. Solve for x:

$$3x + 1 = -2x + 36$$

36. Solve for x:

$$-13x + 8 = -8x - 7$$

37. Solve for x:

$$5x - 1 = 2x - 13$$

38. Solve for x:

$$-2x - 1 = -7x + 44$$

39. Solve. $10(x - 7) = -40$

40. Solve. $3(4z - 4) = 12$

41. Solve. $10(z - 10) = -40$

42. Solve. $9(y - 2) = 36$

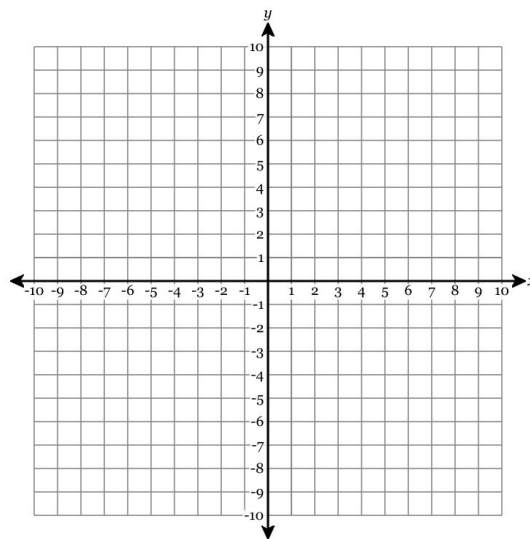**43.** Solve. $4(2z - 8) = 16$

44. Solve for x.

$$2(-5x - 1) + 4x - 3 = 19$$
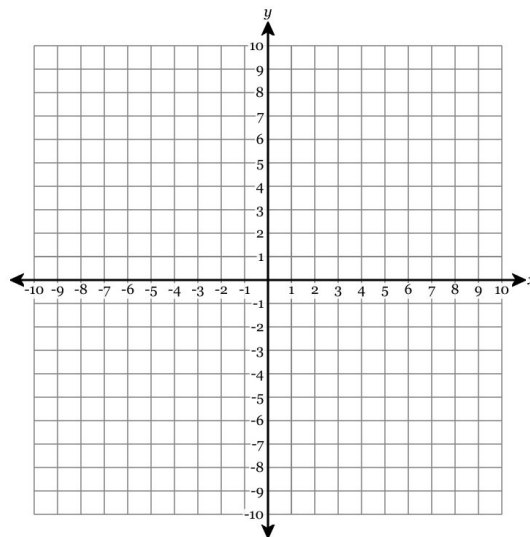
45. Solve for x.

$$2(-x - 3) + 4x - 4 = 4$$

46. Plot the point $(4, 1)$.
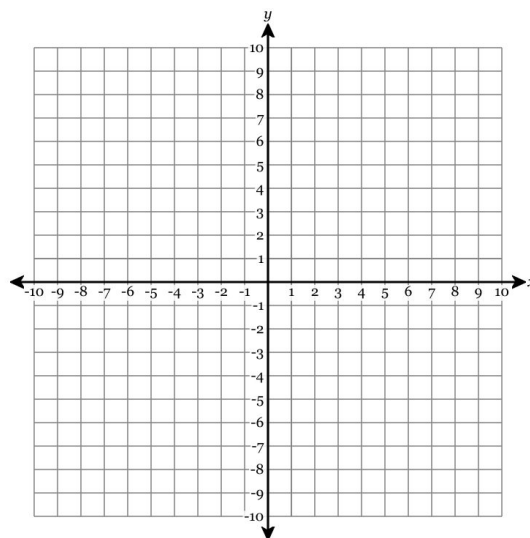
47. Plot the point $(1, -6)$.

48. Plot the point $(4, 4)$.

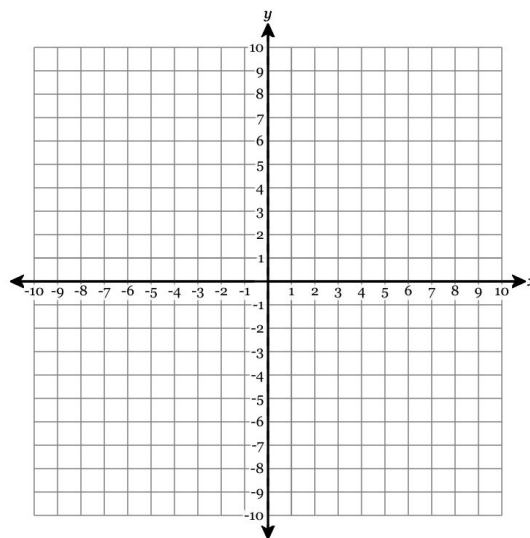**49.** Plot the point $(3, 3)$.
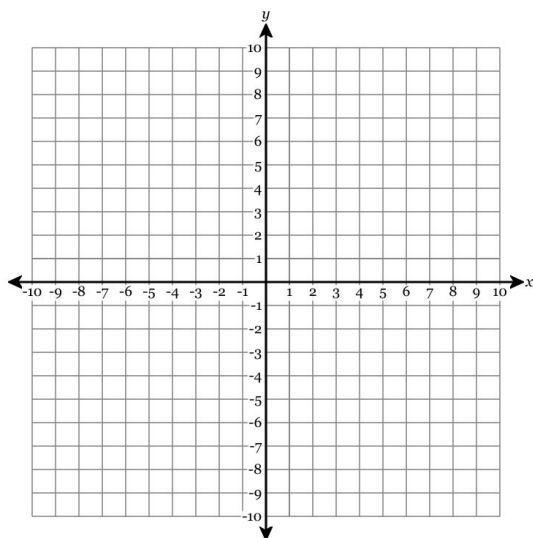
50. Graph the following features:
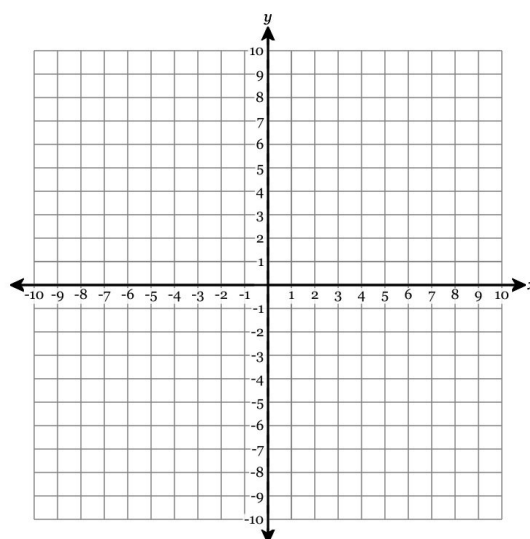
- Y-intercept $= -4$
- Slope $= -2$
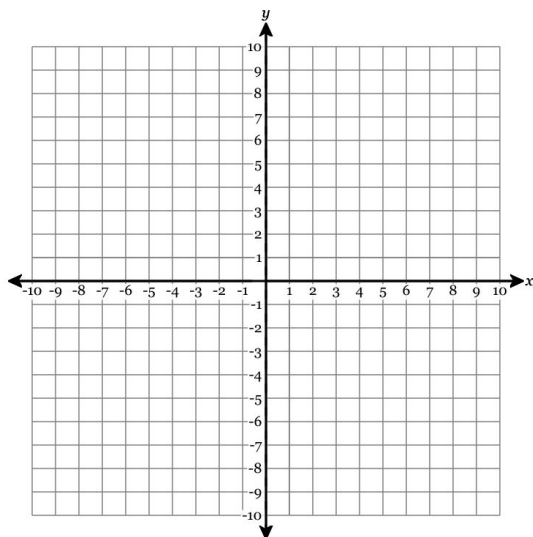
51. Graph the following features:

- Y-intercept $= -5$
- Slope $= -\frac{3}{2}$

52. Graph the following features:

- Y-intercept $= 4$
- Slope $= 3$

53. Find the slope of the line represented by the equation below.
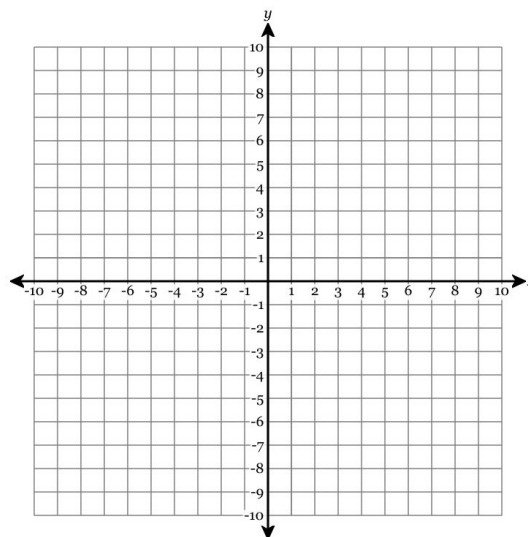
$$y = \frac{3}{4}x + 1$$

55. Find the slope of the line represented by the equation below.

$$y = 4 + \frac{5}{2}x$$

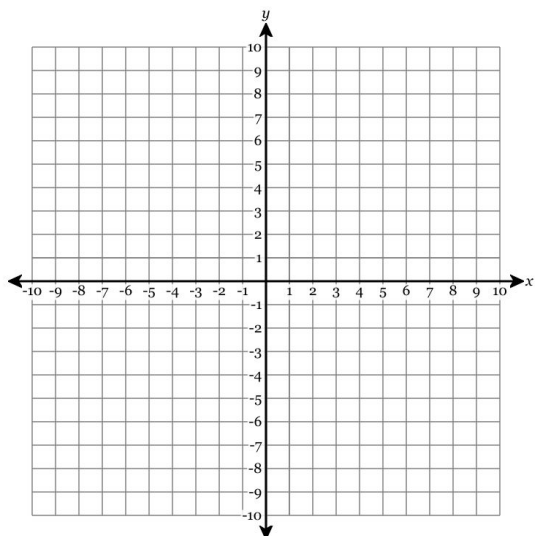**54.** Find the y-intercept of the line represented by the equation below.
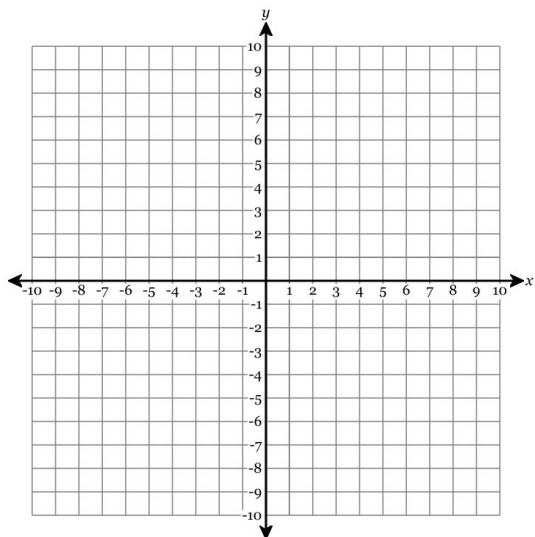
$$y = -5x + 2$$

56. Graph the line with the equation $y = -x + 2$.
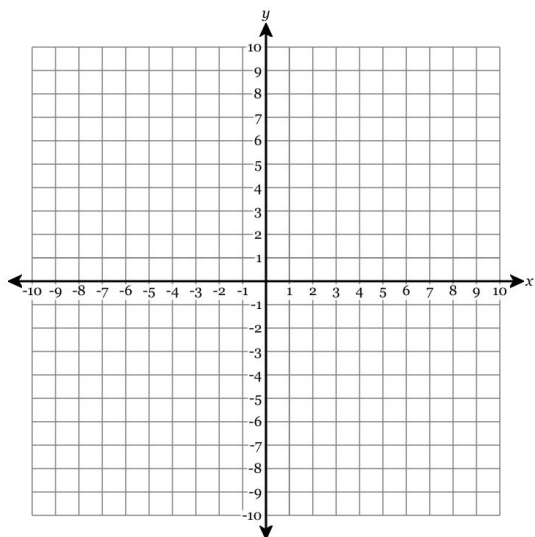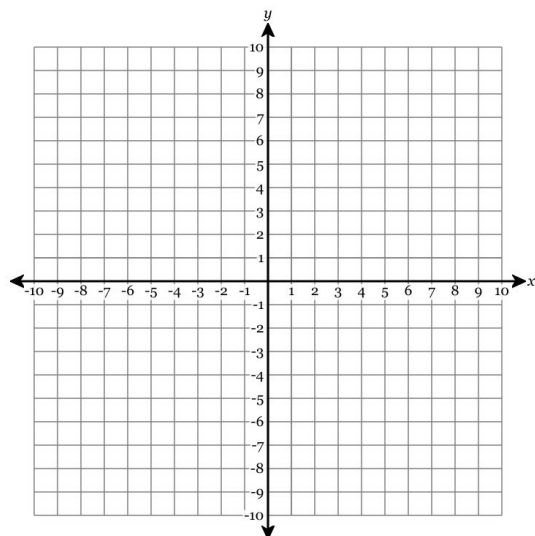
57. Graph the line with the equation $y = x + 1$.

60. Graph the line with the equation $y = \frac{1}{4}x + 1$.

58. Graph the line with the equation $y = -\frac{1}{4}x + 5$.

61. Given $f(x) = -5x - 4$, solve for x when $f(x) = 1$.

59. Graph the line with the equation $y = -5x + 3$.

62. Given $h(x) = -x - 1$, solve for x when $h(x) = 0$.

63. Given $f(x) = -3x - 1$, solve for x when $f(x) = -10$.

64. Identify the greatest common factor of $40b$ and 20.

65. Identify the greatest common factor of $25c$ and $50acw$.

66. Identify the greatest common factor of $29w$ and $22x$.

67. Fully simplify. $-12y^3(2xy)$

68. Fully simplify. $2x^4y^3(5x)$

69. Fully simplify. $16x^4y^2(9x^3y^4)$