

Exercise Set 6.1: 2x2 Linear Systems

Graph each of the following pairs of lines on a single set of axes. Determine whether or not the lines are parallel, intersect in one point, or represent the same line. If the lines intersect in one point, then state their point of intersection.

- $x - y = -3$
 $-3x + y = -7$
- $2x + y = 7$
 $4x + 2y - 14 = 0$
- $-15x + 3y = 12$
 $5x - y = 1$
- $2x + 3y = -12$
 $-x + y = 6$
- $6x - 2y = 8$
 $9x - 3y = 12$
- $3x + y = 2$
 $6x + 2y = -8$

Solve the following systems of linear equations by graphing. If there are infinitely many solutions, give your answer in the form $(x, f(x))$, where $f(x)$ represents the equation of the line in the form $f(x) = mx + b$.

- $2x + y = 3$
 $x - 2y = 14$
- $5x - y = 0$
 $6x - 3y = -9$
- $2x + y = 1$
 $4x + 2y = 10$
- $-2x + 4y = -10$
 $3x - 6y = 15$
- $2x - y = 8$
 $3x + y = 7$
- $2x + y = 11$
 $x + 3y = 3$

- $3x - 2y = 6$
 $6x - 4y = 12$
- $8x - 2y = 10$
 $-12x + 3y = 6$

Solve the following systems of linear equations by using the substitution method. If there are infinitely many solutions, give your answer in the form $(x, f(x))$, where $f(x)$ represents the equation of the line in the form $f(x) = mx + b$.

- $2x - 7y = -6$
 $x = 5y$
- $2x + 3y = -12$
 $y = -2x$
- $3x - 2y = -5$
 $2x + y = 13$
- $5x - 7y = -4$
 $x - 4y = 7$
- $2x + y = 10$
 $6x + 3y = 30$
- $15x + 3y = -1$
 $5x + y = 4$
- $x - 3y = 3$
 $2x + 9y = 11$
- $y - 2 = 3x$
 $9x - 3y = -6$
- $5x - 4y = -5$
 $3x + y = 14$
- $x + 4y + 2 = 0$
 $-2x + 12y = 9$
- $-2x + y - 5 = 0$
 $-6x + 3y = 21$
- $y - 7 = 2x$
 $4x + 3y = 31$

Exercise Set 6.1: 2x2 Linear Systems

Solve the following systems of linear equations by using the elimination method. If there are infinitely many solutions, give your answer in the form $(x, f(x))$, where $f(x)$ represents the equation of the line in the form $f(x) = mx + b$.

27. $4x - 5y = 24$
 $3x + 4y = -13$

28. $2x - 5y = 10$
 $6x - 15y = 13$

29. $3x + 5y = 11$
 $2x + 3y = 7$

30. $3x + 4y = -25$
 $2x - 3y = 6$

31. $4x + 8y = -14$
 $-2x - 4y = 7$

32. $2x - 3y = 8$
 $-5x + 2y = 13$

33. $4x + 3y - 8 = 0$
 $3x - 5y = -23$

34. $-6x - 3y = -33$
 $4x + 3y = 19$

35. $-8x + 6y = 11$
 $12x - 9y = 15$

36. $5x - 2y = 21$
 $3x + 8y = 8$

37. $7x + 4y = 11$
 $5x + 8y = 4$

38. $8x - 8y - 16 = 0$
 $3x - 3y = 6$

41. $4x + 5y - 7 = 0$
 $6x - 2y = -18$

42. $x + 4y - 8 = 0$
 $2x - 5y = 29$

43. $4x + 10y = 6$
 $6x + 15y = 9$

44. $5x + 6y = 14$
 $3x + 5y = 7$

Solve the following systems of equations by using the method of your choice.

39. $-4x + 3y = 10$
 $7x + y = 20$

40. $-6x + 7y = 20$
 $18x - 21y = -10$