Simultaneous Equations
Practice Questions

Solve the following systems of equations using the method of elimination.

1. \[4x + y = 9\]
   \[x - y = 1\]

2. \[2x - 5y = -6\]
   \[-x + 3y = 4\]

3. \[-3x + 4y = 4\]
   \[6x - 5y = 4\]

4. \[4x - 2y = -10\]
   \[-3x + 8y = 14\]

5. \[4x + 3y = 27\]
   \[5x - 2y = 28\]

6. \[-3x + 2y = -8\]
   \[4x - 9y = -2\]

7. \[2x - 3y = 5\]
   \[5x + 2y = -16\]

8. \[2x + 5y = -3\]
   \[9x + 4y = -13\]

9. \[\frac{1}{3}x + \frac{3}{4}y = 5\]
   \[-\frac{5}{2}x - \frac{3}{2}y = 8\]

10. \[\frac{1}{2}x + \frac{1}{3}y = 8\]
    \[\frac{2}{3}x + \frac{3}{2}y = 17\]

Solve the following systems of equations using the method of substitution.

11. \[4x + y = 9\]
    \[x - y = 1\]

12. \[2x - 5y = -6\]
    \[-x + 3y = 4\]

13. \[x - 3y = 2\]
    \[4x + 5y = -9\]

14. \[2x + 6y = 12\]
    \[5x - y = -2\]

15. \[3x - 4y = 5\]
    \[2x + y = -4\]

16. \[2x - y = 1\]
    \[3x + 2y = 33\]

17. \[2x - 8y = 24\]
    \[3x + 2y = 8\]

18. \[2x + 3y = -15\]
    \[3x + 2y = -15\]

19. \[\frac{3}{2}x - 4y = 7\]
    \[x + \frac{1}{2}y = \frac{3}{2}\]

20. \[\frac{3}{2}x - \frac{1}{3}y = 5\]
    \[\frac{5}{2}x + \frac{5}{3}y = 12\]

Solve the following systems of equation by any method.

21. \[x - y = -5\]
    \[x + 3y = 27\]

22. \[2x + 3y = 10\]
    \[-3x + 2y = -41\]

23. \[3x + 2y = 16\]
    \[4x + y = 13\]

24. \[4x - 3y = 5\]
    \[9x - 2y = 16\]

25. \[2x - 3y = -8\]
    \[5x + y = 14\]

26. \[3x + y = -2\]
    \[-2x - 3y = 13\]

27. \[2x + y = 12\]
    \[3x - 2y = 13\]

28. \[-3x - 5y = -8\]
    \[11x - 2y = -2\]

29. \[\frac{3}{2}x + \frac{4}{3}y = 1\]
    \[\frac{1}{10}x + \frac{3}{10}y = 4\]

30. \[\frac{12}{7}x - y = 2\]
    \[\frac{3}{2}x - 4y = -9\]

Solve the following word problems.

31. The sum of \(x\) and \(y\) is 16. When \(y\) is taken from \(x\) the result is 2. Find \(x\) and \(y\).

32. In a money box of 5c and 10c coins, there are 71 coins. Their total value is $5.60. Find the number of each type of coin.

33. Find two numbers whose difference is 8, and the sum of twice the first and 3 times the second is 32.

34. Find two numbers whose sum equals 5 and whose product equals -14.

35. Find all pairs of numbers \(x\) and \(y\) given that \(x - 3y = 27\) and \(xy = 30\).