[06-12-13-8-NEM2]

Solve the following simultaneous equations for x and y.

1. $5x - 4y = 40$
$x + 4y = -16$

2. $6x + 7y = 10$
$4x - 3y = -1$

3. $x - 6y = 17$
$5x + 3y = 2\frac{1}{2}$

4. $3x + 2y = 0$
$x - y = 2.5$

5. $x = 3y - 2$
$9y = 4x - 7$

6. $2y + 3x = 0$
$2x - 26 = 3y$

7. $3x - 4y = -6$
$2x - \frac{4}{3}y = 4$

8. $13 + 2y = 9x$
$3y = 7x$

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

10. $7(x - y) = 6x - 1$
$4(x + 1) = y + 3$

11. $4y = x + 1$
$2y = \frac{2x + 3}{2}$

12. $\frac{x}{3} + \frac{y}{2} = 4$
$\frac{2x}{3} - \frac{y}{6} = 1$

13. $1.2x - 0.8y = 0.4$
$y + 0.1x = 0.3$

14. $5x + 7y - 17 = 0$
$27 - 7y - 3x = 0$

15. $4(2x - y + 3) = 0$
$2(x + y) - 3(x - y) = 6$

16. $\frac{x}{3} + \frac{y}{4} = 3x - 7y - 37 = 0$

17. $\frac{1}{5}(x - 3) = \frac{1}{2}(y - 7)$
$11x = 13y$

18. $\frac{1}{3}x - \frac{5}{9}y = -1$
$0.4x + 0.5y = 2.3$

19. $2x - y + 1 = 3x - y = \frac{1}{2}$

20. $\frac{x + 1}{y + 2} = \frac{2}{3}$
$\frac{x - 2}{y - 1} = \frac{1}{3}$

Solve the following simultaneous equations.

21. $0.8x - 3y = -6$
$1.2x + 0.5y = 3$

22. $6(x + y) - 4(x + 1) = -1$
$\frac{1}{2}(4x - 9y) + \frac{1}{3}(x + 4) = 1$

23. $\frac{1}{3}(2x - y) - \frac{1}{2}(3x - 1) = -5$
$2(y - x) = 3(4x - y) + 3$

24. $\frac{x + 4y}{6} = y$
$\frac{3x + 6y}{2} = 4x - 1$

25. $\frac{x - y}{3} = \frac{2x + y}{2}$
$\frac{x + y + 5}{2} = \frac{3x}{5}$

26. $6x - 4y + 1 = 9x - 8y + 2 = 4y - 3x$

27. $3\frac{1}{3}x - 3y = 2\frac{5}{6}$
$2\frac{1}{4}y - 1\frac{1}{9}x = -1\frac{1}{12}$

28. $x = 3 + 4y$
$y = 2 + 3x$

29. $11x + 3y + 7 = 0$
$2x + 5y - 21 = 0$

30. $\frac{x+1}{3} + y = 8$
$x - \frac{y+1}{3} = -4$

31. $\frac{2x - 3y}{4} = \frac{3x - 2y}{5} = 7.5$

32. Using the substitution $u = \frac{1}{x}$ and $v = \frac{1}{y}$, solve the following simultaneous equations.

(a) $\frac{1}{x} + \frac{2}{y} = -1$
$\frac{3}{x} + \frac{5}{y} = 2$

(b) $\frac{1}{3x} + \frac{4}{5y} = 0$
$\frac{1}{2x} - \frac{2}{15y} = \frac{10}{3}$

33. Find the point of intersection of the following pairs of lines.

(a) $y = 3x - 4$
$2x + 3y + 1 = 0$

(b) $\frac{x}{5} + \frac{y}{3} = 1$
$2x - 5y = 20$

1. $x = 4, y = -5$ **2.** $x = \frac{1}{2}, y = 1$ **3.** $x = 2, y = -2\frac{1}{2}$

4. $x = 1, y = -1\frac{1}{2}$ **5.** $x = 13, y = 5$ **6.** $x = 4, y = -6$

7. $x = 6, y = 6$ **8.** $x = 3, y = 7$ **9.** $x = -2, y = 4$

10. $x = -\frac{2}{9}, y = \frac{1}{9}$ **11.** $x = -2, y = -\frac{1}{4}$ **12.** $x = 3, y = 6$

13. $x = 7, y = 4$ and $x = \frac{1}{2}, y = \frac{1}{4}$ **14.** $x = -5, y = 6$

15. $x = -1, y = 1$ **16.** $x = 3, y = -4$ **17.** $x = 13, y = 11$

18. $x = 2, y = 3$ **19.** $x = 1, y = \frac{5}{2}$ **20.** $x = 3, y = 4$

21. $x = 1.5, y = 2.4$ **22.** $x = \frac{1}{2}, y = \frac{1}{3}$ **23.** $x = 3, y = 9$

24. $x = 1, y = \frac{1}{2}$ **25.** $x = 5, y = -4$ **26.** $x = \frac{1}{3}, y = \frac{1}{2}$

27. $x = \frac{3}{4}, y = -\frac{1}{9}$ **28.** $x = -1, y = -1$ **29.** $x = -2, y = 5$

30. $x = -1, y = 8$ **31.** $x = 10.5, y = -3$

32. **(a)** $x = 9, y = -5$ **(b)** $x = \frac{1}{6}, y = -\frac{2}{5}$

33. **(a)** $x = 1, y = -1$ **(b)** $x = 7, y = -1\frac{1}{5}$

34. **(a)** \$4 **(b)** $4x + 3y = 1\,200$; 320

35. A has \$11, B has \$13 **36.** \$5.55 **37.** $\frac{13}{27}$

38. 120 paid \$2, 80 paid \$1

39. 10 kg of 80¢/kg biscuits and 15 kg of \$1.20/kg biscuits

40. 12 h, 6 h **41.** 39 **42.** \$7, \$1

43. **(a)** $AB = 14$ cm, $BC = 8$ cm **(b)** 44 cm **(c)** 112 cm^2

44. 36 years old **45.** 40 cents **46.** \$3

47. 17 cm, 5 cm **48.** 40 years old, 8 years old

49. \$32, \$48 **50.** $X = 48$ km/h, $Y = 70$ km/h

51. 5, 15, $\frac{1}{3}$ **52.** \$480 000, \$160 000

53. **(a)** 8 cm **(b)** 30 cm^2

54. 20 cm, 18 cm **55.** 41 years old, 11 years old

56. 80 km/h **57.** 9 years old and 33 years old