SOLVING LINEAR EQUATIONS

Solve the following equations.

1) $x + 5 = 10$

$-5 \quad -5$

$\boldsymbol{x = 5}$

2) $y - 2 = 12$

$+2 \quad +2$

$\boldsymbol{y = 14}$

3) $5a = 15$

$\div 5 \quad \div 5$

$\boldsymbol{a = 3}$

4) $\frac{b}{8} = 12$

$\times 8 \quad \times 8$

$\boldsymbol{b = 96}$

5) $7 - y = 2$

$-7 \quad -7$

$-y = -5$

$\boldsymbol{y = 5}$

6) $z + 4 = -7$

$-4 \quad -4$

$\boldsymbol{z = -11}$

7) $2w = 7$

$\div 2 \quad \div 2$

$\boldsymbol{w = \frac{7}{2}}$

8) $u - 8 = 10$

$+8 \quad +8$

$\boldsymbol{u = 18}$

9) $\frac{1}{4}g = 20$

$\times 4 \quad \times 4$

$\boldsymbol{g = 80}$

10) $\frac{45}{y} = 5$

$\times y \quad \times y$

$45 = 5y$

$\div 5 \quad \div 5$

$\boldsymbol{y = 9}$

11) $9f = 27$

$\div 9 \quad \div 9$

$\boldsymbol{f = 3}$

12) $20 - n = 14$

$-20 \quad -20$

$-n = -6$

$\boldsymbol{n = 6}$

13) $a + a + a = 15$

$3a = 15$

$\div 3 \quad \div 3$

$\boldsymbol{a = 5}$

14) $6e - e = 20$

$5e = 20$

$\div 5 \quad \div 5$

$\boldsymbol{e = 4}$

15) $\frac{1}{3}b = 9$

$\times 3 \quad \times 3$

$\boldsymbol{b = 27}$

16) $-\frac{1}{4} = \frac{c}{8}$

$\times 8 \quad \times 8$

$\boldsymbol{c = -2}$

17) $\frac{1}{12}g = 14$

$\times 12 \quad \times 12$

$\boldsymbol{g = 168}$

18) $2x + 7 = 19$

$-7 \quad -7$

$2x = 12$

$\div 2 \quad \div 2$

$\boldsymbol{x = 6}$

19) $3y - 4 = 14$

$+4 \quad +4$

$3y = 18$

$\div 3 \quad \div 3$

$\boldsymbol{y = 6}$

20) $5a + 12 = 37$

$-12 \quad -12$

$5a = 25$

$\div 5 \quad \div 5$

$\boldsymbol{a = 5}$

21) $7b - 5 = 16$

$+5 \quad +5$

$7b = 21$

$\div 7 \quad \div 7$

$\boldsymbol{b = 3}$

22) $4p + 6 = 22$

$-6 \quad -6$

$4p = 16$

$\div 4 \quad \div 4$

$\boldsymbol{p = 4}$

23) $9m - 15 = 21$

$+15 \quad +15$

$9m = 36$

$\div 9 \quad \div 9$

$\boldsymbol{m = 4}$

24) $\frac{x}{5} + 3 = 9$

$-3 \quad -3$

$\frac{x}{5} = 6$

$\times 5 \quad \times 5$

$\boldsymbol{x = 30}$

25) $\frac{2a-4}{3} = 6$

$\times 3 \quad \times 3$

$2a - 4 = 18$

$+4 \quad +4$

$2a = 22$

$\div 2 \quad \div 2$

$\boldsymbol{a = 11}$

26) $12 - 4k = 0$

$-12 \quad -12$

$-4k = -12$

$\div (-4) \quad \div (-4)$

$\boldsymbol{k = 3}$

27) $\frac{3d-1}{8} = 10$

$\times 8 \quad \times 8$

$3d - 1 = 80$

$+1 \quad +1$

$3d = 81$

$\div 3 \quad \div 3$

$\boldsymbol{d = 27}$

28) $\frac{x}{3} + 9 = -12$

$-9 \quad -9$

$\frac{x}{3} = -21$

$\times 3 \quad \times 3$

$\boldsymbol{x = -63}$

29) $\frac{b}{6} + 2 = 13$

$-2 \quad -2$

$\frac{b}{6} = 11$

$\times 6 \quad \times 6$

$\boldsymbol{b = 66}$

30) $\frac{3(x-2)}{4} = 17$

$\times 4 \quad \times 4$

$3(x-2) = 68$

$3x - 6 = 68$

$+6 \quad +6$

$3x = 74$

$\boldsymbol{x = \frac{74}{3}}$

31) $\frac{5x-5}{4} = 20$

$\times 4 \quad \times 4$

$5x - 5 = 80$

$+5 \quad +5$

$5x = 85$

$\div 5 \quad \div 5$

$\boldsymbol{x = 17}$

32) $\frac{4}{x} + 12 = 18$

$-12 \quad -12$

$\frac{4}{x} = 6$

$\times x \quad \times x$

$4 = 6x$

$\div 6 \quad \div 6$

$\boldsymbol{x = \frac{2}{3}}$

33) $6r + 8 = 32$

$-8 \quad -8$

$6r = 24$

$\div 6 \quad \div 6$

$\boldsymbol{r = 4}$

34) $2x + 4 = 11$

$-4 \quad -4$

$2x = 7$

$\div 2 \quad \div 2$

$\boldsymbol{x = \frac{7}{2}}$

35) $7y - 3 = 20$

$+3 \quad +3$

$7y = 23$

$\div 7 \quad \div 7$

$\boldsymbol{y = \frac{23}{7}}$

36) $5(t + 2) = 30$

$5t + 10 = 30$

$-10 \quad -10$

$5t = 20$

$\div 5 \quad \div 5$

$\boldsymbol{t = 4}$

37) $7(y + 3) = 21$

$7y + 21 = 21$

$-21 \quad -21$

$7y = 0$

$\div 7 \quad \div 7$

$\boldsymbol{y = 0}$

38) $3x - 7 = 2x + 1$

$-2x \quad -2x$

$x - 7 = 1$

$+7 \quad +7$

$\boldsymbol{x = 8}$

39) $8y + 6 = 10y - 4$

$-8y \quad -8y$

$6 = 2y - 4$

$+4 \quad +4$

$10 = 2y$

$\boldsymbol{y = 5}$

40) $2a + 9 = 5a - 3$

$-2a \quad -2a$

$9 = 3a - 3$

$+3 \quad +3$

$12 = 3a$

$\div 3 \quad \div 3$

$\boldsymbol{a = 4}$

41) $9n - 12 = 3n + 6$

$-3n \quad -3n$

$6n - 12 = 6$

$+12 \quad +12$

$6n = 18$

$\div 6 \quad \div 6$

$\boldsymbol{n = 3}$

42) $4m + 10 = 2m + 22$

$-2m \quad -2m$

$2m + 10 = 22$

$-10 \quad -10$

$2m = 12$

$\div 2 \quad \div 2$

$\boldsymbol{m = 6}$

43) $15 - 5p = 2p$

$+5p \quad +5p$

$15 = 7p$

$\div 7 \quad \div 7$

$\boldsymbol{p = \frac{15}{7}}$

44) $2(x + 4) = 6x - 8$

$2x + 8 = 6x - 8$

$-2x \quad -2x$

$8 = 4x - 8$

$+8 \quad +8$

$16 = 4x$

$\div 4 \quad \div 4$

$\boldsymbol{x = 4}$

45) $3(2y - 1) = 5y + 7$

$6y - 3 = 5y + 7$

$-5y \quad -5y$

$y - 3 = 7$

$+3 \quad +3$

$\boldsymbol{y = 10}$

46) $5x + 4 = 3x + 12$

$-3x \quad -3x$

$2x + 4 = 12$

$-4 \quad -4$

$2x = 8$

$\div 2 \quad \div 2$

$\boldsymbol{x = 4}$

47) $4a - 7 = 2a + 6$

$-2a \quad -2a$

$2a - 7 = 6$

$+7 \quad +7$

$2a = 13$

$\div 2 \quad \div 2$

$\boldsymbol{a = \frac{13}{2}}$

48) $6b + 2 = 3b + 11$

$-3b \quad -3b$

$3b + 2 = 11$

$-2 \quad -2$

$3b = 9$

$\div 3 \quad \div 3$

$\boldsymbol{b = 3}$

49) $\frac{x}{3} + 4 = 10$

$-4 \quad -4$

$\frac{x}{3} = 6$

$\times 3 \quad \times 3$

$\boldsymbol{x = 18}$

50) $\frac{2a + 8}{5} = 7$

$\times 5 \quad \times 5$

$2a + 8 = 35$

$-8 \quad -8$

$2a = 27$

$\boldsymbol{a = \frac{27}{2}}$

51) $10 - 7k = 2k + 1$

$+7k \quad +7k$

$10 = 9k + 1$

$-1 \quad -1$

$9 = 9k$

$\div 9 \quad \div 9$

$\boldsymbol{k = 1}$

52) $9r - 5 = 2r + 10$

$-2r \quad -2r$

$7r - 5 = 10$

$+5 \quad +5$

$7r = 15$

$\div 7 \quad \div 7$

$\boldsymbol{r = \frac{15}{7}}$

53) $4(x - 2) = 3(x + 5)$

$4x - 8 = 3x + 15$

$-3x \quad -3x$

$x - 8 = 15$

$+8 \quad +8$

$\boldsymbol{x = 23}$

54) $\frac{a}{2} + \frac{a}{3} = 5$

$\times 6 \quad \times 6$

$3a + 2a = 30$

$5a = 30$

$\div 5 \quad \div 5$

$\boldsymbol{a = 6}$

55) $\frac{10}{a} - 3 = 7$

$+3 \quad +3$

$\frac{10}{a} = 10$

$\boldsymbol{a = 1}$

56) $10 - \frac{20}{y} = 5$

$-10 \quad -10$

$-\frac{20}{y} = -5$

$\times y \quad \times y$

$-20 = -5y$

$\div (-5) \quad \div (-5)$

$\boldsymbol{y = 4}$

57) $\frac{3b}{4} + \frac{b}{6} = 10$

$\times 12 \quad \times 12$

$9b + 2b = 120$

$11b = 120$

$\boldsymbol{b = \frac{120}{11}}$

58) $\frac{5}{4} = \frac{3}{z}$

$\times z \quad \times z$

$\frac{5}{4}z = 3$

$\left(\div \frac{5}{4}\right) \quad \left(\div \frac{5}{4}\right)$

$\boldsymbol{z = \frac{12}{5}}$

59) $\frac{x}{3} - \frac{x}{9} = \frac{1}{6}$

$\times 9 \quad \times 9$

$3x - x = \frac{3}{2}$

$2x = \frac{3}{2}$

$\div 2 \quad \div 2$

$\boldsymbol{x = \frac{3}{4}}$

60) $\frac{1}{4} - \frac{x}{6} = \frac{x}{8}$

$\times 24 \quad \times 24$

$6 - 4x = 3x$

$+4x \quad +4x$

$6 = 7x$

$\div 7 \quad \div 7$

$\boldsymbol{x = \frac{6}{7}}$

61) $7 = 2(u - 1) + 5$

$7 = 2u - 2 + 5$

$7 = 2u + 3$

$-3 \quad -3$

$4 = 2u$

$\div 2 \quad \div 2$

$\boldsymbol{u = 2}$

62) $0.5h - 0.3 = 4.6$

$+0.3 \quad +0.3$

$0.5h = 4.9$

$\div 0.5 \quad \div 0.5$

$\boldsymbol{h = 9.8}$

63) $0.5p = 0.25(3p - 4)$

$0.5p = 0.75p - 1$

$-0.75p \quad -0.75p$

$-0.25p = -1$

$\div (-0.25) \quad \div (-0.25)$

$\boldsymbol{p = 4}$

64) $0.75u = \frac{u}{5}$

$\times 5 \quad \times 5$

$3.75u = u$

$\boldsymbol{u = 0}$

65) $2x + 5 - x = 3x + 2 + x$

$x + 5 = 4x + 2$

$-x \quad -x$

$5 = 3x + 2$

$-2 \quad -2$

$3 = 3x$

$\div 3 \quad \div 3$

$\boldsymbol{x = 1}$