

SOLVING LINEAR EQUATIONS

Solve the following equations.

1) $x + 5 = 10$

$$\quad -5 \quad -5$$

$$\mathbf{x = 5}$$

2) $y - 2 = 12$

$$\quad +2 \quad +2$$

$$\mathbf{y = 14}$$

3) $5a = 15$

$$\div 5 \quad \div 5$$

$$\mathbf{a = 3}$$

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

$$\times 8 \quad \times 8$$

$$\mathbf{b = 96}$$

5) $7 - y = 2$

$$\quad -7 \quad -7$$

$$\quad -y = -5$$

$$\mathbf{y = 5}$$

6) $z + 4 = -7$

$$\quad -4 \quad -4$$

$$\mathbf{z = -11}$$

7) $2w = 7$

$$\div 2 \quad \div 2$$

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

8) $u - 8 = 10$

$$\quad +8 \quad +8$$

$$\mathbf{u = 18}$$

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

$$\times 4 \quad \times 4$$

$$\mathbf{g = 80}$$

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

$$\times y \quad \times y$$

$$45 = 5y$$

$$\div 5 \quad \div 5$$

$$\mathbf{y = 9}$$

11) $9f = 27$

$$\div 9 \quad \div 9$$

$$\mathbf{f = 3}$$

12) $20 - n = 14$

$$\quad -20 \quad -20$$

$$\quad -n = -6$$

$$\mathbf{n = 6}$$

13) $a + a + a = 15$

$$3a = 15$$

$$\div 3 \quad \div 3$$

$$\mathbf{a = 5}$$

14) $6e - e = 20$

$$5e = 20$$

$$\div 5 \quad \div 5$$

$$\mathbf{e = 4}$$

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

$$\times 3 \quad \times 3$$

$$\mathbf{b = 27}$$

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

$$\times 8 \quad \times 8$$

$$\mathbf{c = -2}$$

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

$$\times 12 \quad \times 12$$

$$\mathbf{g = 168}$$

$$18) 2x + 7 = 19$$

$$-7 \quad -7$$

$$2x = 12$$

$$\div 2 \quad \div 2$$

$$x = 6$$

$$19) 3y - 4 = 14$$

$$+4 \quad +4$$

$$3y = 18$$

$$\div 3 \quad \div 3$$

$$y = 6$$

$$20) 5a + 12 = 37$$

$$-12 \quad -12$$

$$5a = 25$$

$$\div 5 \quad \div 5$$

$$a = 5$$

$$21) 7b - 5 = 16$$

$$+5 \quad +5$$

$$7b = 21$$

$$\div 7 \quad \div 7$$

$$b = 3$$

$$22) 4p + 6 = 22$$

$$-6 \quad -6$$

$$4p = 16$$

$$\div 4 \quad \div 4$$

$$p = 4$$

$$23) 9m - 15 = 21$$

$$+15 \quad +15$$

$$9m = 36$$

$$\div 9 \quad \div 9$$

$$m = 4$$

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

$$-3 \quad -3$$

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

$$\times 5 \quad \times 5$$

$$x = 30$$

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

$$\times 3 \quad \times 3$$

$$2a - 4 = 18$$

$$+4 \quad +4$$

$$2a = 22$$

$$\div 2 \quad \div 2$$

$$a = 11$$

$$26) 12 - 4k = 0$$

$$-12 \quad -12$$

$$-4k = -12$$

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

$$k = 3$$

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

$$\times 8 \quad \times 8$$

$$3d - 1 = 80$$

$$+1 \quad +1$$

$$3d = 81$$

$$\div 3 \quad \div 3$$

$$d = 27$$

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

$$-9 \quad -9$$

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

$$\times 3 \quad \times 3$$

$$x = -63$$

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

$$-2 \quad -2$$

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

$$\times 6 \quad \times 6$$

$$b = 66$$

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

$$\times 4 \quad \times 4$$

$$3(x-2) = 68$$

$$3x - 6 = 68$$

$$+6 \quad +6$$

$$3x = 74$$

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

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

$$\times 4 \quad \times 4$$

$$5x - 5 = 80$$

$$+5 \quad +5$$

$$5x = 85$$

$$\div 5 \quad \div 5$$

$$x = 17$$

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

$$-12 \quad -12$$

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

$$\times x \quad \times x$$

$$4 = 6x$$

$$\div 6 \quad \div 6$$

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

$$33) 6r + 8 = 32$$

$$-8 \quad -8$$

$$6r = 24$$

$$\div 6 \quad \div 6$$

$$r = 4$$

$$34) 2x + 4 = 11$$

$$-4 \quad -4$$

$$2x = 7$$

$$\div 2 \quad \div 2$$

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

$$35) 7y - 3 = 20$$

$$+3 \quad +3$$

$$7y = 23$$

$$\div 7 \quad \div 7$$

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

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

$$5t + 10 = 30$$

$$-10 \quad -10$$

$$5t = 20$$

$$\div 5 \quad \div 5$$

$$t = 4$$

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

$$7y + 21 = 21$$

$$-21 \quad -21$$

$$7y = 0$$

$$\div 7 \quad \div 7$$

$$y = 0$$

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

$$-2x \quad -2x$$

$$x - 7 = 1$$

$$+7 \quad +7$$

$$x = 8$$

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

$$-8y \quad -8y$$

$$6 = 2y - 4$$

$$+4 \quad +4$$

$$10 = 2y$$

$$y = 5$$

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

$$-2a \quad -2a$$

$$9 = 3a - 3$$

$$+3 \quad +3$$

$$12 = 3a$$

$$\div 3 \quad \div 3$$

$$a = 4$$

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

$$-3n \quad -3n$$

$$6n - 12 = 6$$

$$+12 \quad +12$$

$$6n = 18$$

$$\div 6 \quad \div 6$$

$$n = 3$$

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

$$-2m \quad -2m$$

$$2m + 10 = 22$$

$$-10 \quad -10$$

$$2m = 12$$

$$\div 2 \quad \div 2$$

$$m = 6$$

$$43) 15 - 5p = 2p$$

$$+5p \quad +5p$$

$$15 = 7p$$

$$\div 7 \quad \div 7$$

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

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

$$2x + 8 = 6x - 8$$

$$-2x \quad -2x$$

$$8 = 4x - 8$$

$$+8 \quad +8$$

$$16 = 4x$$

$$\div 4 \quad \div 4$$

$$x = 4$$

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

$$6y - 3 = 5y + 7$$

$$-5y \quad -5y$$

$$y - 3 = 7$$

$$+3 \quad +3$$

$$y = 10$$

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

$$-3x \quad -3x$$

$$2x + 4 = 12$$

$$-4 \quad -4$$

$$2x = 8$$

$$\div 2 \quad \div 2$$

$$x = 4$$

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

$$-2a \quad -2a$$

$$2a - 7 = 6$$

$$+7 \quad +7$$

$$2a = 13$$

$$\div 2 \quad \div 2$$

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

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

$$-3b \quad -3b$$

$$3b + 2 = 11$$

$$-2 \quad -2$$

$$3b = 9$$

$$\div 3 \quad \div 3$$

$$b = 3$$

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

$$-4 \quad -4$$

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

$$\times 3 \quad \times 3$$

$$x = 18$$

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

$$\times 5 \quad \times 5$$

$$2a + 8 = 35$$

$$-8 \quad -8$$

$$2a = 27$$

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

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

$$+7k \quad +7k$$

$$10 = 9k + 1$$

$$-1 \quad -1$$

$$9 = 9k$$

$$\div 9 \quad \div 9$$

$$k = 1$$

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

$$-2r \quad -2r$$

$$7r - 5 = 10$$

$$+5 \quad +5$$

$$7r = 15$$

$$\div 7 \quad \div 7$$

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

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

$$4x - 8 = 3x + 15$$

$$-3x \quad -3x$$

$$x - 8 = 15$$

$$+8 \quad +8$$

$$x = 23$$

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

$$\times 6 \quad \times 6$$

$$3a + 2a = 30$$

$$5a = 30$$

$$\div 5 \quad \div 5$$

$$a = 6$$

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

$$+3 \quad +3$$

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

$$a = 1$$

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

$$-10 \quad -10$$

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

$$\times y \quad \times y$$

$$-20 = -5y$$

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

$$y = 4$$

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

$$\times 12 \quad \times 12$$

$$9b + 2b = 120$$

$$11b = 120$$

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

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

$$\times z \quad \times z$$

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

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

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

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

$$\times 9 \quad \times 9$$

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

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

$$\div 2 \quad \div 2$$

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

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

$$\times 24 \quad \times 24$$

$$6 - 4x = 3x$$

$$+4x \quad +4x$$

$$6 = 7x$$

$$\div 7 \quad \div 7$$

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

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

$$7 = 2u - 2 + 5$$

$$7 = 2u + 3$$

$$-3 \quad -3$$

$$4 = 2u$$

$$\div 2 \quad \div 2$$

$$u = 2$$

$$62) 0.5h - 0.3 = 4.6$$

$$+0.3 \quad +0.3$$

$$0.5h = 4.9$$

$$\div 0.5 \quad \div 0.5$$

$$h = 9.8$$

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

$$0.5p = 0.75p - 1$$

$$-0.75p \quad -0.75p$$

$$-0.25p = -1$$

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

$$p = 4$$

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

$$\times 5 \quad \times 5$$

$$3.75u = u$$

$$u = 0$$

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

$$x + 5 = 4x + 2$$

$$-x \quad -x$$

$$5 = 3x + 2$$

$$-2 \quad -2$$

$$3 = 3x$$

$$\div 3 \quad \div 3$$

$$x = 1$$