

Answers

- (t) $d^2 - 12d + 35$ (u) $a^2 + 10a + 25$ (v) $x^2 - 6x + 9$ (w) $b^2 + 4b + 4$
 (x) $e^2 - 8e + 16$ (y) $4x^2 + 4x + 1$ (z) $9x^2 - 12x + 4$
3. (a) $9p^2 + 12pq + 4q^2$ (b) $16m^2 - 24mn + 9n^2$ (c) $x^2 - 25$ (d) $y^2 - 49$
 (e) $25a^2 - 9$ (f) $36x^2 - 25y^2$ (g) $x^2 - 4$ (h) $x^2 - a^2$
4. (a) $6x^2 + 7x - 3$
 (b) Use $x = 10$: $29 \times 23 = (3 \times 10 - 1)(2 \times 10 + 3)$
 Hence, by putting $x = 10$ in $6x^2 + 7x - 3$ we get 667.
5. (a) (i) $4x^2 + 12x$ (ii) $4x^2 + 12x + 9$
 (b) $((x + 3) + x)$; $((x + 3) + x) = (2x + 3) = 4x^2 + 12x + 9$
6. (a) $d^3 + 6d$ (b) g^8 (c) $8p + 7$
7. (a) $11x + 14$ (b) $4x^2 - 2x^3$

10.8 Simultaneous Equations

1. (a) $x = 9, y = 5$ (b) $x = 1, y = 2$ (c) $x = -23, y = -78$ (d) $x = 2, y = 1$
 (e) $x = -2, y = 3.5$ (f) $x = 5, y = -2$ (g) $x = -2, y = 3$ (h) $x = -2, y = -4$
 (i) $x = 3, y = 1$ (j) $a = 4, b = 3$ (k) $x = 7\frac{4}{27}, y = 2\frac{5}{9}$ (l) $m = 2, n = 4$
 (m) $x = -2, y = 3$ (n) $u = -1, v = -7$
2. $x = 2.4, y = 1.6$
3. (a) $x = 5, y = 2$ (b) $x = 1, y = -2$ (c) $x = 6, y = -5$ (d) $x = -2, y = 7$
 (e) $x = -1, y = -2$ (f) $x = 6, y = -1$ (g) $x = 0, y = 4$ (h) $x = 3.5, y = -2$
 (i) $x = -3, y = 2$ (j) $x = 7, y = -2$ (k) $x = -2, y = 3$ (l) $x = 2, y = -3$
4. $x + y = 100$ 5. $5x + 3y = 8.50$
 $20x + 35y = 2600$ $x = 60, y = 40$ $8x + 4y = 13.20$ $x = \text{£}1.40, y = \text{£}0.50$
6. x stands for David's money and y for John's money.
 $x + y = \text{£}14$; $3x + 2y = \text{£}34$; $x = \text{£}6, y = \text{£}8$
7. The cost of a television set is £900 and the cost of a video-recorder is £650.

Answers

8. The toothbrush costs £1.95 and the tube of toothpaste costs £2.20.
9. 6 kg of the spice which costs £22 per kg and 14 kg of the spice which costs £12 per kg.
10. (a) $3x + 2y = 26$; $4x + y = 28$ (b) $x = 6$, $y = 4$
11. $x = 2$, $y = 1.5$
12. $x = -1$, $y = 1$ and $x = -\frac{7}{5}$, $y = \frac{1}{5}$

10.9 Factorisation 1

1. (a) $5(a + 2b)$ (b) $3(2p - 5q)$ (c) $16(x - 2y)$ (d) $7y(2x - z)$
 (e) $4x(5x - 4)$ (f) $2a(1 + 2b)$ (g) $2x(x + z)$ (h) $9m(n - 3mn)$
 (i) $4q(2p - 3q)$ (j) $2ax(x - 2a)$ (k) $3x(3xy^2 - 1)$ (l) $7r(2m^2 - 1)$
 (m) $4pq^2(3 + 4p)$
2. (a) $5(2a - 3b)$ (b) $10p(5y - 12)$ (c) $8ab(3c - 1)$ (d) $6bc(a + 2d)$
 (e) $4(4m^2 + 3n^2)$ (f) $p^2y(1 + y)$ (g) $6st(3s - 2t)$ (h) $5a(2 + 3a)$
 (i) $c(1 - c)$ (j) $2a^2b(b - 4)$ (k) $mn(m - l)$ (l) $3(2xy - y + 3x)$
 (m) $p(qr + p + r)$ (n) $b(ac + a^2 + c)$ (o) $2abc(4 + 3b + 2c)$
 (p) $st(5s - 3 - 4t)$
3. (a) $(x - y)(m + n)$ (b) $(a + b)(k + l)$ (c) $(2x + y)(a - b)$
 (d) $(c + d)(3x - 2y)$ (e) $(a + b)(y + x)$ (f) $(x - y)(k + l)$
 (g) $(2x + 3y)(a - b)$ (h) $(p + q)(3b - ab) = b(p + q)(3 - a)$
 (i) $(c + d)(10a - 5a^2) = 5a(c + d)(2 - a)$ (j) $(m + n)(4 - 8z) = 4(m + n)(1 - 2z)$
4. (a) $3x + 6$ (b) $2(3a - 5)$ (c) $3ab(2a + 3b)$

10.10 Factorisation 2

1. (a) $(x - 1)(x - 2)$ (b) $(x + 1)(x + 2)$ (c) $(x - 1)(x + 1)$ (d) $(x + 6)(x - 5)$
 (e) $(x + 3)^2((x + 3)(x + 3))$ (f) $(x + 4)(x - 3)$ (g) $(x - 5)(x + 3)$
 (h) $(x - 4)^2((x - 4)(x - 4))$ (i) $(x + 7)(x + 3)$ (j) $(x + 12)(x - 2)$