Solutions – Expanding Surds (A)

Expand $(2 + 3\sqrt{4})(5 + 3\sqrt{4})$

$46 + 21\sqrt{4}$

Expand $(1 – 4\sqrt{5})(1 + 6\sqrt{5})$

$–119 + 2\sqrt{5}$

Expand $(2 – 5\sqrt{5})(4 – 6\sqrt{5})$

$158 – 32\sqrt{5}$

Expand $(5 – 6\sqrt{5})(2 – 2\sqrt{5})$

$70 – 22\sqrt{5}$

Expand $(2 – 3\sqrt{5})(6 + 6\sqrt{5})$

$–78 – 6\sqrt{5}$

Expand $(3 + \sqrt{6})(4 – \sqrt{6})$

$6 + \sqrt{6}$

Solutions – Expanding Surds (B)

Expand $(3 + 4\sqrt{3})(4 + 2\sqrt{3})$

$36 + 22\sqrt{3}$

Expand $(2 – 5\sqrt{4})(5 – 3\sqrt{4})$

$70 – 31\sqrt{4}$

Expand $(5 – 3\sqrt{5})(4 + 2\sqrt{5})$

$–10 – 2\sqrt{5}$

Expand $(4 – 2\sqrt{6})(3 – 6\sqrt{6})$

$84 – 30\sqrt{6}$

Expand $(4 + \sqrt{3})(6 – \sqrt{3})$

$21 + 2\sqrt{3}$

Expand $(6 + 6\sqrt{2})(1 + 3\sqrt{2})$

$42 + 24\sqrt{2}$

Solutions – Expanding Surds (C)

Expand $(2 – 5\sqrt{3})(6 – 5\sqrt{3})$

$87 – 40\sqrt{3}$

Expand $(6 + 3\sqrt{4})(5 – 3\sqrt{4})$

$–6 – 3\sqrt{4}$

Expand $(4 + 5\sqrt{5})(1 – \sqrt{5})$

$–21 + \sqrt{5}$

Expand $(5 – 3\sqrt{4})(4 + \sqrt{4})$

$8 – 7\sqrt{4}$

Expand $(2 + \sqrt{4})(6 – 2\sqrt{4})$

$4 + 2\sqrt{4}$

Expand $(3 – \sqrt{2})(5 + 3\sqrt{2})$

$9 + 4\sqrt{2}$

Solutions – Expanding Surds (D)

Expand $(4 + 3\sqrt{2})(4 + 4\sqrt{2})$

$40 + 28\sqrt{2}$

Expand $(2 – 3\sqrt{2})(1 – 4\sqrt{2})$

$26 – 11\sqrt{2}$

Expand $(5 + \sqrt{3})(3 – 2\sqrt{3})$

$9 – 7\sqrt{3}$

Expand $(2 – \sqrt{2})(6 + 5\sqrt{2})$

$2 + 4\sqrt{2}$

Expand $(4 – 4\sqrt{6})(1 – 4\sqrt{6})$

$100 – 20\sqrt{6}$

Expand $(5 + 3\sqrt{5})(1 + 2\sqrt{5})$

$35 + 13\sqrt{5}$

Solutions – Expanding Surds (E)

Expand $(3 + 3\sqrt{4})(4 - \sqrt{4})$

$9\sqrt{4}$

Expand $(3 - 4\sqrt{4})(2 + 2\sqrt{4})$

$-26 - 2\sqrt{4}$

Expand $(3 + 2\sqrt{2})(1 - 4\sqrt{2})$

$-13 - 10\sqrt{2}$

Expand $(3 + 3\sqrt{4})(6 + 2\sqrt{4})$

$42 + 24\sqrt{4}$

Expand $(3 - \sqrt{5})(1 - 2\sqrt{5})$

$13 - 7\sqrt{5}$

Expand $(2 + 3\sqrt{4})(2 + 4\sqrt{4})$

$52 + 14\sqrt{4}$

Solutions – Expanding Surds (F)

Expand $(6 + 3\sqrt{3})(2 - 6\sqrt{3})$

$-42 - 30\sqrt{3}$

Expand $(4 + \sqrt{4})(1 - 4\sqrt{4})$

$-12 - 15\sqrt{4}$

Expand $(2 - 3\sqrt{3})(2 + 5\sqrt{3})$

$-41 + 4\sqrt{3}$

Expand $(5 + 2\sqrt{2})(5 - 5\sqrt{2})$

$5 - 15\sqrt{2}$

Expand $(6 + 5\sqrt{6})(3 + 2\sqrt{6})$

$78 + 27\sqrt{6}$

Expand $(6 + 4\sqrt{4})(3 + 3\sqrt{4})$

$66 + 30\sqrt{4}$

Solutions – Expanding Surds (G)

Expand $(6 + 2\sqrt{4})(4 – 4\sqrt{4})$

$–8 – 16\sqrt{4}$

Expand $(2 – 2\sqrt{6})(6 – 6\sqrt{6})$

$84 – 24\sqrt{6}$

Expand $(6 + 4\sqrt{5})(5 + 3\sqrt{5})$

$90 + 38\sqrt{5}$

Expand $(2 – 2\sqrt{5})(5 – \sqrt{5})$

$20 – 12\sqrt{5}$

Expand $(6 – 2\sqrt{3})(2 – 2\sqrt{3})$

$24 – 16\sqrt{3}$

Expand $(4 + 5\sqrt{2})(5 – 5\sqrt{2})$

$–30 + 5\sqrt{2}$

Solutions – Expanding Surds (H)

Expand $(2 + 2\sqrt{3})(6 – 2\sqrt{3})$

$8\sqrt{3}$

Expand $(5 – 6\sqrt{4})(3 – 6\sqrt{4})$

$159 – 48\sqrt{4}$

Expand $(6 + 3\sqrt{3})(5 – 2\sqrt{3})$

$12 + 3\sqrt{3}$

Expand $(4 – \sqrt{6})(1 + 6\sqrt{6})$

$–32 + 23\sqrt{6}$

Expand $(5 – 6\sqrt{5})(4 – 5\sqrt{5})$

$170 – 49\sqrt{5}$

Expand $(2 – 6\sqrt{2})(5 + 4\sqrt{2})$

$–38 – 22\sqrt{2}$

Solutions – Expanding Surds (I)

Expand $(2 - \sqrt{6})(1 - 4\sqrt{6})$

$26 - 9\sqrt{6}$

Expand $(6 - 2\sqrt{4})(2 + \sqrt{4})$

$4 + 2\sqrt{4}$

Expand $(6 - 6\sqrt{6})(1 + 4\sqrt{6})$

$-138 + 18\sqrt{6}$

Expand $(1 - 4\sqrt{2})(2 - \sqrt{2})$

$10 - 9\sqrt{2}$

Expand $(6 + \sqrt{6})(3 - 3\sqrt{6})$

$-15\sqrt{6}$

Expand $(6 + 2\sqrt{4})(5 + 2\sqrt{4})$

$46 + 22\sqrt{4}$

Solutions – Expanding Surds (J)

Expand $(4 + 5\sqrt{3})(6 – 2\sqrt{3})$

$–6 + 22\sqrt{3}$

Expand $(1 + \sqrt{4})(5 + \sqrt{4})$

$9 + 6\sqrt{4}$

Expand $(5 + 6\sqrt{4})(5 – 3\sqrt{4})$

$–47 + 15\sqrt{4}$

Expand $(1 + 3\sqrt{2})(1 – 3\sqrt{2})$

$–17$

Expand $(4 + \sqrt{4})(4 – 3\sqrt{4})$

$4 – 8\sqrt{4}$

Expand $(4 + 5\sqrt{2})(5 – 6\sqrt{2})$

$–40 + \sqrt{2}$