SURDS – Multiplying and Dividing

Bronze → Silver → Gold

Simplifying:

$\sqrt{24} = \sqrt{4 \times 6} = 2\sqrt{6}$

Note:
Choose the highest factor which is a square number

Simplify:

$\sqrt{50} =$

$\sqrt{48} =$

Simplify:

$\sqrt{72} =$

$\sqrt{44} =$

Simplify and give your answer in the form $a\sqrt{b}$:

$\sqrt{125} =$

$\sqrt{243} =$

Multiplying:

$\sqrt{5} \times \sqrt{3} = \sqrt{15}$

$\sqrt{5} \times \sqrt{15} = \sqrt{75} = 5\sqrt{3}$

Note:
$\sqrt{a} \times \sqrt{b} = \sqrt{ab}$

Simplify:

$\sqrt{5} \times \sqrt{2} =$

$\sqrt{7} \times \sqrt{5} =$

Simplify:

$\sqrt{3} \times \sqrt{2} =$

$\sqrt{13} \times \sqrt{2} =$

Simplify completely:

$\sqrt{7} \times \sqrt{3} \times \sqrt{5} =$

$\sqrt{2} \times \sqrt{5} \times \sqrt{3} =$

Dividing:

$\sqrt{15} \div \sqrt{3} = \sqrt{15 \div 3} = \sqrt{5}$

$\sqrt{24} \div \sqrt{6} = \sqrt{24 \div 6} = \sqrt{4} = 2$

Note:
$\sqrt{a} \div \sqrt{b} = \sqrt{a \div b}$

Simplify:

$\sqrt{26} \div \sqrt{2} =$

$\sqrt{18} \div \sqrt{3} =$

Simplify:

$\sqrt{20} \div \sqrt{5} =$

$\sqrt{64} \div \sqrt{2} =$

Simplify:

$\sqrt{24} \times \sqrt{2} \div \sqrt{3} =$

$\sqrt{48} \div \sqrt{3} \div \sqrt{8} =$

SURDS – Adding and Subtracting

Bronze → Silver → Gold

Remember:

$\sqrt{24} = \sqrt{4 \times 6} = 2\sqrt{6}$

$\sqrt{5} \times \sqrt{15} = \sqrt{75} = 5\sqrt{3}$

$\sqrt{15} \div \sqrt{3} = \sqrt{15 \div 3} = \sqrt{5}$

Simplify and give your answer in the form $a\sqrt{b}$:

$\sqrt{20}$ =

$\sqrt{72}$ =

Simplify:

$\sqrt{13} \times \sqrt{2}$ =

$\sqrt{64} \div \sqrt{2}$ =

Simplify:

$\sqrt{7} \times \sqrt{3} \times \sqrt{5}$ =

$\sqrt{28} \div \sqrt{2} \div \sqrt{7}$ =

Adding in surd form:

$4\sqrt{2} + 3\sqrt{2} = 7\sqrt{2}$

$\sqrt{8} + \sqrt{18} = 2\sqrt{2} + 3\sqrt{2} = 5\sqrt{2}$

Note:

$b\sqrt{a} + c\sqrt{a}$ = (b + c)$\sqrt{a}$

Simplify:

$6\sqrt{3} + 3\sqrt{3}$ =

$3\sqrt{5} + 2\sqrt{5}$ =

$2\sqrt{2} + 4\sqrt{2} + \sqrt{2}$ =

Simplify:

$\sqrt{12} + \sqrt{27}$ =

$\sqrt{32} + \sqrt{50}$ =

$\sqrt{24} + \sqrt{54}$ =

Simplify:

$\sqrt{125} + \sqrt{45} + \sqrt{20}$ =

$\sqrt{3} + 7\sqrt{3} + \sqrt{12}$ =

$2\sqrt{12} + \sqrt{27} + \sqrt{48}$ =

Subtracting in surd form:

$7\sqrt{5} - 3\sqrt{5} = 4\sqrt{5}$

$\sqrt{32} - \sqrt{18} = 4\sqrt{2} - 3\sqrt{2} = \sqrt{2}$

Note:

$b\sqrt{a} - c\sqrt{a}$ = (b - c)$\sqrt{a}$

Simplify:

$6\sqrt{2} - 4\sqrt{2}$ =

$7\sqrt{5} - 3\sqrt{5}$ =

$3\sqrt{3} - \sqrt{3}$ =

Simplify:

$\sqrt{27} - \sqrt{12}$ =

$\sqrt{50} - \sqrt{18}$ =

$\sqrt{75} - \sqrt{48}$ =

Simplify:

$\sqrt{175} - 4\sqrt{7}$ =

$3\sqrt{27} - \sqrt{75}$ =

$\sqrt{80} - \sqrt{180}$ =