SURD OPERATIONS

RULES:

$\sqrt{a} \times \sqrt{b} = \sqrt{ab}$ AND $\frac{\sqrt{a}}{\sqrt{b}} = \sqrt{\frac{a}{b}}$ You can only add and subtract surds of the same root

ALL solutions MUST be in simplified form:

Examples:

1. $\sqrt{8} + \sqrt{2}$

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

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

$= 3\ \sqrt{2}$

2. $\sqrt{2} \times \sqrt{10}$

$= \sqrt{20}$

$= \sqrt{4} \times \sqrt{5}$

$= 2\sqrt{5}$

3. $\sqrt{12} \div \sqrt{3}$

$= \sqrt{\frac{12}{3}}$

$= \sqrt{4}$

$= 2$

Now try these

1. $\sqrt{12} + \sqrt{3}$
2. $\sqrt{20} + \sqrt{5}$
3. $\sqrt{3} + \sqrt{27}$
4. $\sqrt{40} + \sqrt{90}$
5. $\sqrt{32} - \sqrt{2}$
6. $\sqrt{27} - \sqrt{3}$
7. $\sqrt{50} - \sqrt{2}$
8. $\sqrt{45} - \sqrt{20}$
9. $\sqrt{6} \times \sqrt{2}$
10. $\sqrt{10} \times \sqrt{5}$
11. $\sqrt{3} \times \sqrt{3}$
12. $\sqrt{7} \times \sqrt{8}$
13. $\sqrt{32} \div \sqrt{2}$
14. $\sqrt{24} \div \sqrt{2}$
15. $\sqrt{75} \div \sqrt{3}$
16. $\sqrt{100} \div \sqrt{5}$
17. $3\sqrt{2} \times 2\sqrt{2}$
18. $4\sqrt{2} \div 2\sqrt{2}$
19. $5\sqrt{5} \times 2\sqrt{10}$
20. $10\sqrt{24} \div 5\sqrt{2}$

SOLUTIONS

1. $3\sqrt{3}$	2. $3\sqrt{5}$	3. $4\sqrt{3}$	4. $5\sqrt{10}$
5. $3\sqrt{2}$	6. $2\sqrt{3}$	7. $4\sqrt{2}$	8. $\sqrt{5}$
9. $2\sqrt{3}$	10. $5\sqrt{2}$	11. 3	12. $4\sqrt{3}$
13. 4	14. $2\sqrt{3}$	15. 5	16. $2\sqrt{5}$
17. 12	18. 2	19. $50\sqrt{2}$	20. $4\sqrt{3}$