

Surds: Mixed *fluency*

 Simplify

1 $\sqrt{12}$

2 $\sqrt{18}$

3 $\sqrt{50}$

4 $\sqrt{45}$

5 $\sqrt{72}$

6 $\sqrt{200}$

 Simplify

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

8 $\sqrt{2} \times \sqrt{8}$

9 $\sqrt{6} \times \sqrt{3}$

10 $(\sqrt{7})^2$

11 $2\sqrt{3} \times 5\sqrt{2}$

12 $\frac{\sqrt{48}}{\sqrt{3}}$

 Simplify

13 $3\sqrt{2} + 5\sqrt{2}$

14 $7\sqrt{5} - 2\sqrt{5}$

15 $\sqrt{12} + \sqrt{27}$

16 $\sqrt{50} - \sqrt{8}$

17 $\sqrt{20} + \sqrt{45}$

18 $2\sqrt{18} - \sqrt{32}$

 Expand and simplify

19 $\sqrt{2}(3 + \sqrt{2})$

20 $(2 + \sqrt{3})(1 + \sqrt{3})$

21 $(4 - \sqrt{5})(4 + \sqrt{5})$

22 $(3 + \sqrt{2})^2$

23 $(\sqrt{7} - 1)^2$

24 $(5 - \sqrt{3})(2 + \sqrt{3})$

 Rationalise the denominator

25 $\frac{1}{\sqrt{2}}$

26 $\frac{6}{\sqrt{3}}$

27 $\frac{10}{\sqrt{5}}$

28 $\frac{3}{\sqrt{6}}$

29 $\frac{5}{2\sqrt{5}}$

30 $\frac{4 + \sqrt{2}}{\sqrt{2}}$