SIMPLIFYING SURDS

Answer all of these questions. Remember to show your working out in all questions.

MAIN QUESTIONS

1. $\sqrt{12}$

2. $\sqrt{18}$

3. $\sqrt{50}$

4. $\sqrt{72}$

5. $\sqrt{98}$

6. $\sqrt{200}$

7. $\sqrt{27}$

8. $\sqrt{75}$

9. $\sqrt{128}$

10. $\sqrt{242}$

11. $\sqrt{45} + \sqrt{20}$

12. $\sqrt{63} - \sqrt{28}$

13. $2\sqrt{12} + 3\sqrt{27}$

14. $5\sqrt{8} - 2\sqrt{18}$

15. $\sqrt{3} \times \sqrt{12}$

16. $\sqrt{8} \times \sqrt{18}$

17. $\sqrt{20} \times \sqrt{45}$

18. $\sqrt{50} \div \sqrt{2}$

19. $\sqrt{72} \div \sqrt{8}$

20. $\sqrt{75} \div \sqrt{3}$

21. $(2\sqrt{3})^2$

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

23.

$(4\sqrt{5})^2$

24.

$1/\sqrt{2}$

25.

$2/\sqrt{3}$

26.

$5/\sqrt{5}$

27.

$3/(2\sqrt{2})$

28.

$\sqrt{12} + \sqrt{27} - \sqrt{75}$

29.

$\sqrt{8} + \sqrt{18} + \sqrt{32}$

30.

$\sqrt{50} - \sqrt{18} + \sqrt{8}$

MASTER QUESTIONS

M1.

A square has an area of 72cm^2. Find the exact length of one side.

M2.

A right-angled triangle has legs of length $\sqrt{12}$ cm and $\sqrt{27}$ cm. Find the exact length of the hypotenuse.

M3.

A rectangle has length $\sqrt{50}$ cm and width $\sqrt{18}$ cm. Find its exact area.

M4.

Simplify the expression for the perimeter of an equilateral triangle with side length $\sqrt{48}$ cm.

M5.

A circle has area $32\pi\ \text{cm}^2$. Find the exact radius.

M6.

Find the exact distance between points (0,0) and $(\sqrt{12},\sqrt{27})$.

M7.

A cube has volume $64\sqrt{2}\ \text{cm}^3$. Find the exact length of one edge.

M8.

Simplify the expression for the diagonal of a square with area 98 cm^2.

M9.

A ladder $\sqrt{75}$ m long leans against a wall. The base is $\sqrt{12}$ m from the wall. Find the exact height reached.

M10.

Find the exact value of $(\sqrt{8} + \sqrt{2})^2$.