ILLAWARRA TUTORING

This worksheet focuses on solving exponential equations by applying logarithms to isolate the unknown. You will practise rewriting equations so that the exponent is the subject and then applying logarithms as required.

Easy Questions

1. Solve $2^x = 16$.
2. Solve $3^x = 27$.
3. Solve $5^x = 125$.
4. Solve $10^x = 1000$.
5. Solve $e^x = e^5$.

Intermediate Questions

6. Solve $2^x = 10$.
7. Solve $3^{2x} = 81$.
8. Solve $4^{x+1} = 32$.
9. Solve $5^{2x-1} = 125$.
10. Solve $2^{3x} = 7$.
11. Solve $e^x = 20$.
12. Solve $3^{x-2} = 9$.
13. Solve $7^x = 343$.
14. Solve $2^{2x+1} = 16$.
15. Solve $10^{2x} = 500$.
16. Solve $6^{x+1} = 216$.
17. Solve $2^{x-2} = 4$.
18. Solve $5^{3x} = 625$.
19. Solve $e^{2x} = 15$.
20. Solve $3^{x+2} = 5^x$.

Hard Questions

21. Solve $2^{3x-1} = 7^{x+2}$.
22. Solve $4^{x+2} = 3^{2x-1}$.
23. Solve $e^{2x} \cdot 2^x = 50$.
24. Solve $\left(\frac{1}{2}\right)^x = 16$.
25. Solve $3^{2x+1} = 4^{x+3}$.
26. Solve $5^{x-1} = 2^{x+2}$.
27. Solve $2^{x+3} = 3^{x-1}$.
28. Solve $7^{2x} = 2^{x+4}$.
29. Solve $10^x = 4 \cdot 2^{2x}$.
30. Solve $2^{x+1} = 3^{x-2}$.