ILLAWARRA TUTORING

In this worksheet you will tackle equations where the unknown appears in the exponent. You will learn to rewrite expressions to a common base and use logarithms where necessary to solve exponential equations.

Easy Questions

1. Solve: $2^x = 8$.
2. Solve: $3^x = 9$.
3. Solve: $5^x = 125$.
4. Solve: $e^x = e^4$.
5. Solve: $10^x = 10$.

Intermediate Questions

6. Solve: $2^{x+1} = 16$.
7. Solve: $3^{2x} = 81$.
8. Solve: $5^{2x-1} = 125$.
9. Solve: $4^{x+2} = 64$.
10. Solve: $2^{2x} = 32$.
11. Solve: $3^{x-1} = 27$.
12. Solve: $9^x = 3^4$.
13. Solve: $27^x = 9$.
14. Solve: $2^{3x} = 128$.
15. Solve: $(1/2)^x = 8$.
16. Solve: $e^{2x} = e^5$.
17. Solve: $10^{x-2} = 100$.
18. Solve: $(1/4)^x = 16$.
19. Solve: $2^x + 2^x = 32$.
20. Solve: $6^x = 36$.

Hard Questions

21. Solve: $5^{x+2} = 125^{x-1}$.
22. Solve: $2^{2x+1} = 8^{x-3}$.
23. Solve: $3^{3x} = 81^{x+1}$.
24. Solve: $4^{2x-3} = 64^{x}$.
25. Solve: $(2/3)^{x} = (27/8)$.
26. Solve: $7^{x} = 49^{x-2}$.
27. Solve: $(1/3)^{2x+1} = 9$.
28. Solve: $2^{x+3} = 4^{2x-1}$.
29. Solve: $9^{x-1} = 27$.
30. Solve: $(1/5)^{x} = 125$.