

4.4: Exp & Log Eqns.

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Ex 1: $5^{x-3} = 11$

Ex 2: $7^{x^2} = \frac{1}{7} 7$

Guidelines

- (1) isolate the exponential(s)
- (2) log both sides
- (3) solve for the variable.

Ex 3: $2^{3x+1} = 3^{x-2}$

Ex 4: $\frac{50}{1+e^{-x}} = 4$

Ex 5: $x^2 e^x + x e^x - e^x = 0$

Ex 6: $\log_4(x-3) = 2$ check

Ex 7: $\log_5(x-5) + \log_5(x-1) = 2$ check

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Guidelines

- (1) isolate the logs
- (2) exponentiate
- (3) solve for the variables
- (4) check

Ex 8: $\log(10x+5) - \log(x+4) = \log(2)$

Ex 9: $\log_2(x+4) + \log_2(x+2) = \log_2(3)$

Ex 10: $5^x + 12 \cdot 5^{-x} = 7$

Ex 11: $\ln(\ln(\ln(x+6))) = 0$

Ex 12: $\ln(x^4) = [\ln(x)]^3$

Ex 13: Find $\sinh^{-1}(x)$.

Doubling Time

AP4