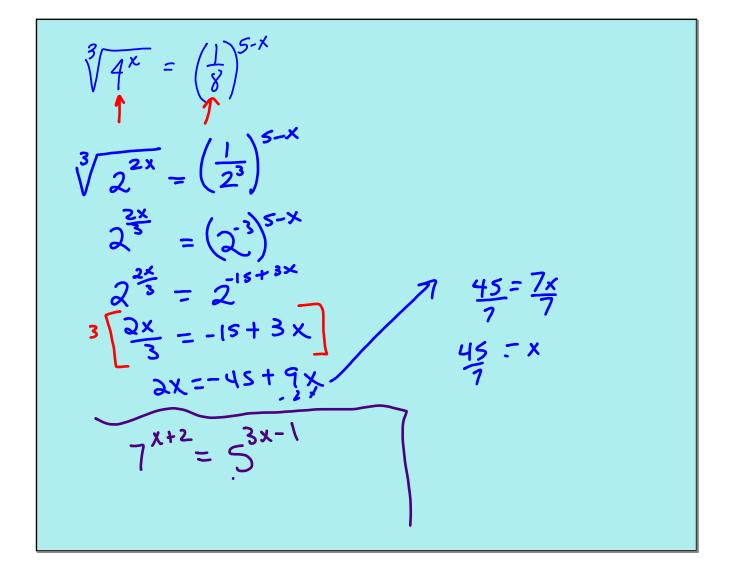
EXPONENTIAL EQUATIONS \* Solve exp. equations \* e!  $\begin{pmatrix} 4 \\ 9 \end{pmatrix}^{4x} = 27^{X+2}$  Make Common bases!  $\begin{pmatrix} \frac{1}{3^2} \end{pmatrix}^{4x} = (3^3)^{X+2}$ \* Intro to logs \* Evaluate logs \* Graph logs??  $(3^{-2})^{4x} = (3^{3})^{x+2}$  $3^{-8x} = 3^{3x+6}$ - 8X = 3X+6 -6=<u>N</u>X



Leonard Euler (Diler)  $e = \left(1 + \frac{1}{n}\right)^n \approx 2.718$ Nature number  $2e^{2} \cdot e^{5} = 2e^{7}$ Ae."  $n=1(1+\frac{1}{1})^{2}=2^{2}=2^{2}$  $N=2 \left( \left( 1 + \frac{1}{2} \right)^{2} = 2.25 \right)$   $N=3 \left( \left( 1 + \frac{1}{3} \right)^{3} = 2.37 \right)$   $N=4 \left( \left( 1 + \frac{1}{3} \right)^{4} = 2.44 \right)$ 

Used to Solve for LOGARITHMS. Logarithms inverse of an exp func John Napier 1614 Exp Func  $y = b^{x}$ Kargamen  $y = b^{x}$ log, 49 b>0, b+1 72 = 49 y=log.x  $y = x^{3} - 4$ 25= 32 5 = |09232| $X = y^3 - 4$  $1 + 4 = 3 + 4^3$ Logarithms 5ent PONENTSI • 🗙

$$5^{3} = 125$$

$$3 = \log^{125}$$

$$\log_{12} 36 = \log_{12} 6^{2} = 2$$

$$\log_{12} 2^{4} = 4$$

$$\log_{12} 16 = \log_{12} 2^{4} = 4$$

$$\log_{12} \sqrt{3^{1}} = \log_{13} 3^{1/5} = \frac{1}{5}$$

$$\log_{12} \frac{1}{144} = \log_{12} \frac{1}{12} = \log_{12} 12^{2} = -2$$

$$\log_{12} \frac{1}{124} = \log_{12} \frac{1}{12} = \log_{12} 12^{2} = -2$$

$$\log_{11} \sqrt[3]{\frac{1}{121}} = \log_{11} \sqrt[3]{\frac{1}{11}} = \log_{11} \frac{1}{12}$$

$$= \log_{11} 11$$

$$\frac{Common Logs}{\log_{10} x = \log x}$$

$$\frac{\log_{10} x = \log x}{\log_{10} x = \ln x}$$

$$\log_{10} \log Q = \log_{10} 10^3 = 3$$

$$\log_{10} Q Q = \log_{10} 10^{-2} = -2$$

$$\ln_{10} e^8 = 8$$

$$\ln_{10} e^{2.63} = 2.63$$

$$e^{\ln_{17}} = 17$$

$$10^{\log_{10} 47} = 47$$