

UNIT 5: EXPONENTIAL & LOGARITHMIC FUNCTIONS

WEEK 16: DAY 2: SOLVING EXPONENTIAL EQUATIONS

What is an exponential equation:

Ex.)

All are exponential equations because...

RULE: If two **powers** are **equal** and they have **like bases** then the **exponents** are **equal**.



Ex.) Solve each:

1. $4^x = 64$

2. $6^{x+3} = 6^{2x}$

3. $9^{2x} = 81^{3x+4}$

4. $5^{3x-9} = 1$

5. $5^{4-x} = \frac{1}{5}$

& Check:

6. $\left(\frac{1}{4}\right)^{x+2} = \left(\frac{1}{8}\right)^{x+3}$

$$7. 9^{x-2} - 8 = 73$$

$$8. 2^{2x-7} - 1 = 1$$

$$9. 2(3^{x+2}) = 18$$

$$10. 5(2^{3x-2}) = 80$$

$$11. 3^{x+2} - 3^x = 216$$

$$12. 3^{x^2} = 27(3^{2x})$$

$$13. 9^{x^2+1} = (27^x)(3^x)^x$$