

# Exponential and Logarithmic Equations

## DAY 5

**EXAMPLE ONE** → Equating exponents and the “inside” of a logarithm

(a)  $4^{x+3} = 4^{2x-1}$

(b)  $\log_4(x^2) = \log_4(x+2)$

**EXAMPLE TWO** → Changing the bases

a)  $9^{2x} = 27^{x-1}$

b)  $81^{3-x} = \left(\frac{1}{3}\right)^{5x-6}$

c)  $\log_2 x = \log_4(4x-4)$

d)  $\log_4(x) = \log_{16}(2x+15)$

**EXAMPLE THREE** → Re-Writing the function

(a)  $4^x = 11$

(b)  $2^x = 5$

(c)  $\log_4(5x - 1) = 3$

(d)  $\log_7(3x - 2) = 2$

**EXAMPLE FOUR** → Using Properties and re-writing

(a)  $\log(2x) + \log(x - 5) = 2$

(b)  $\log(5x) + \log(x - 1) = 2$

**EXAMPLE FIVE** → **Difficult Solving!**

$$6^{3x-1} = 10^{x+7}$$

