

# Check your understanding solve: $log_5(x+2) + log_5(x-2) = 1$ logs(X-XX+Xx-4)-1 1095 (X-4) t4

## Check your understanding

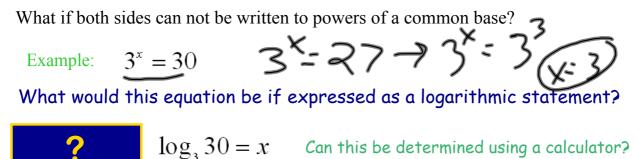
Solve:

 $log_{2}(log_{2}(x)) = 1$  $a^{1} = |og_{2}(x)|$  $a^{2} = |og_{2}(x)|$  $a^{2} = |og_{2}(x)|$ 

### Check your understanding

Solve:  $log_{10}(x+3) + log_{10}(x) = 1$ 1090(X+3x)= 1  $X^{1}+3X$ SX-2-10 0= x = 3x-10 (++5)(+-2 - 9)=0 N(+-+)

#### **Exponential Equations**



Here is a new method to solve exponential equations...

• Particularly effective when unable to express both sides as a power of a common base

Key property of equations...

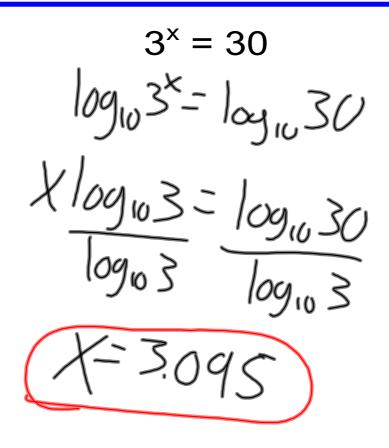
 $3^{x} = 30$ 

• As long as you perform the same operation to BOTH sides of an equation, equality will be maintained

Take the common logarithm of both sides...or natural logarithm

Why base 10 or base "e"?

#### **Exponential Equations**



Examples - 32 2 2) <sup>1)</sup>  $2^{x} = 30$  $10^{2x} = 52$ 159 10910 102×= 10910 52 ×\_ 109 67:4.90 2× 100 10 = 10910 M=4.75 )= 4.87 30 2x(1)= 10010 1091030 Q 10910 2 = log 10 52

Now Your Turn:  
a) 
$$12^{x} = 13$$
  
 $\log_{10} |2^{x} - \log_{10} |3|$   
 $\chi \log_{10} |2^{x} - \log_{10} |3|$   
 $\chi - \log_{10} |3|$   
 $x - (1 - \log_{10} |3|)$   
 $x - (1 - \log$