

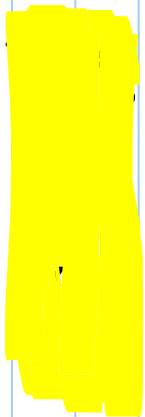
# Solving Exponential Equations

Note Title

10/1/2012

I can solve an exponential equation.

Ex 1:  $5^{\sqrt{3}} = 5^{\sqrt{2}}$   
 $5^{\sqrt{3}-\sqrt{2}}$



b)

$(\log \sqrt{5})^{\sqrt{2}}$   
 $\log \sqrt{30}$



a)  $64^{\pi} \cdot 2^{\pi}$

$2^{6\pi} \cdot 2^{\pi}$   
 $2^{6\pi+\pi}$

$(2^6)^{\pi} \cdot 2^{\pi}$



# Solve!

Ex 2 a)  $2^x = \frac{1}{128}$

"like bases"

$$2^x = 2^{-7}$$

$x = -7$

set exponents equal, solve

b)  $3^{5x} = 3^{ax-1}$

$$3^{5x} = (3^2)^{2x-1}$$

$$3^{5x} = 3^{4x-2}$$

$$5x = 4x - 2$$

$-4x \quad -4x$

$$x = -2$$

c)  $4^{9n-2} = 256$

$$4^{9n-2} = 4^4$$

$$9n-2 = 4$$

$$9n-2 = 4$$

$+2 \quad +2$

$$n = \frac{2}{3}$$

$$256$$

$$\sqrt[4]{256} = 4$$

$\sqrt[4]{256} = 4$   
 $\sqrt[4]{256} = 4$   
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 $\sqrt[4]{256} = 4$

You try...

$$3^{2n+1} = 81$$

$$* \cdot 4^{2x} = 8^{x-1}$$

$$3^{2n+1} = 3^4$$

81

$$(2 \cdot 2)^{2x} = (2 \cdot 2)^{x-1}$$

$$2^{4x} = 2^{3x-3}$$

$$2n+1=4$$

✓

$$4x = 3x - 3$$

$$-3x = -3x$$

$$x = -3$$

$$-1 = 1 \quad \checkmark \quad \checkmark$$

$$\frac{2n = \frac{3}{2}}{2} \quad \checkmark \quad \checkmark \quad \checkmark \quad \checkmark$$

$$n = \frac{3}{2}$$

$$\underline{\text{Ex 3}} : 5^{3-2k} > \frac{1}{625}$$

Ex 1

$$2^x = 5$$

You try ...

$$3^x = 7$$

EX5

5

(x-2)

$$= 71$$

