



Air maths tuition

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## Indices (Exponents) - Equation Types

$a^m = a^n \Rightarrow m=n$	
Solve $3^{2x} = 9^{5x+1}$	
$\therefore 3^{2x} = (3^2)^{5x+1}$	$(a^m)^n = a^{mn}$
$\therefore 3^{2x} = 3^{10x+2}$	
$\therefore 2x = 10x + 2$	
$\therefore -8x = 2$	
$\therefore x = \frac{2}{-8}$	
$\therefore x = -\frac{1}{4}$	
	$16^{5x+1} - 8^{2x-1} = 0$
	$\therefore 16^{5x+1} = 8^{2x-1}$
	$\therefore (2^4)^{5x+1} = (2^3)^{2x-1}$
	$\therefore 2^{20x+4} = 2^{6x-3}$
	$\therefore 20x+4 = 6x-3$
	$\therefore 14x = -7$
	$\therefore x = \frac{-7}{14}$
	$\therefore x = -\frac{1}{2}$

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