

**Form Three Mathematics Remedial Class**  
**Laws of Indices (1)**

Date: 27<sup>th</sup> September 2013

Identify the mistakes found below and do corrections.

	Mistake	Correction
1.	$a^4b^{-2} = (ab)^{4+(-2)}$	
2.	$(c+d)^{-2} = c^{-2} + d^{-2}$	
3.	$2 \times 3^{-1} = 6^{-1}$	
4.	$2 + 3m^{-1} = 5m^{-1}$	
5.	$\left(\frac{-2}{a^{-2}}\right)^{-3} = \frac{1}{8a^6}$	
6.	$\frac{(-a^2m^{-3})^{-2}}{[4(-a)^0m^2]^{-1}} = -\frac{4m^8}{a^4}$	

For questions 1 and 2, all letters are non-zero numbers.

1. Simplify  $(a^{-1}b^3)^2 \left(\frac{a^2}{b^{-3}}\right)^{-2}$  and express the answer with positive indices.

2. Simplify  $(m^0 + n^0)^2 \times (m + n)^{-2} \times \frac{1}{m + n}$  and express the answer with positive indices.

For questions 3 to 6, solve the exponential equations.

3.  $5^{x+1} - 5^x = 100$

4.  $3^x + 3^{x-1} = 108$

5.  $2(5^x) + 5^{x-1} - 275 = 0$

6.  $2^{x+2} + 2^{x+1} - \frac{3}{4} = 0$