Topic/Skill	Definition/Tips	Example
1. Square	The number you get when you <b>multiply a</b>	1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121,
Number	number by itself.	144, 169, 196, 225
		$9^2 = 9 \times 9 = 81$ $\sqrt{36} = 6$
2. Square Root	The <b>number you multiply by itself</b> to get	$\sqrt{36} = 6$
	another number.	
		because $6 \times 6 = 36$
	The reverse process of squaring a number.	2
3. Solutions to	Equations involving squares have two	Solve $x^2 = 25$
$x^2 =$	solutions, one positive and one negative.	
		x = 5  or  x = -5
		This can also be written as $x = \pm 5$
4. Cube	The number you get when you <b>multiply a</b>	1, 8, 27, 64, 125
Number	number by itself and itself again.	
5. Cube Root	The number you multiply by itself and	$2^{3} = 2 \times 2 \times 2 = 8$ $\sqrt[3]{125} = 5$
3. Cube Root	itself again to get another number.	$\sqrt{125} = 5$
		because $5 \times 5 \times 5 = 125$
	The reverse process of cubing a number.	
6. Powers of	The powers of a number are that <b>number</b>	The powers of 3 are:
	raised to various powers.	-
		$3^1 = 3$
		$3^2 = 9$
		$3^3 = 27$
		$3^4 = 81 \text{ etc.}$
7.	When <b>multiplying</b> with the same base	$7^5 \times 7^3 = 7^8$
Multiplication	(number or letter), add the powers.	$a^{12} \times a = a^{13}$
Index Law	_m m _m+n	$4x^5 \times 2x^8 = 8x^{13}$
8. Division	$a^m \times a^n = a^{m+n}$	$15^7 \div 15^4 = 15^3$
Index Law	When <b>dividing</b> with the same base (number or letter), <b>subtract the powers</b> .	$x^9 \div x^2 = x^7$
muex Law	of letter), subtract the powers.	$ \begin{array}{ccc}                                   $
	$a^m \div a^n = a^{m-n}$	$\frac{20u + 3u - 4u}{}$
9. Brackets	When raising a power to another power,	$(y^2)^5 = y^{10}$
Index Laws	multiply the powers together.	$(6^3)^4 = 6^{12}$
	1 1 1	$(6^3)^4 = 6^{12}$ $(5x^6)^3 = 125x^{18}$
	$(a^m)^n = a^{mn}$	, ,
10. Notable	$p = p^1$	$99999^0 = 1$
Powers	$p^0 = 1$	
11. Negative	A negative power performs the reciprocal.	$3^{-2} = \frac{1}{3^2} = \frac{1}{9}$
Powers	$a^{-m} = \frac{1}{a^m}$	$3 - = \frac{1}{3^2} = \frac{1}{9}$
		2
12. Fractional	The denominator of a fractional power acts	$27^{\frac{2}{3}} = \left(\sqrt[3]{27}\right)^2 = 3^2 = 9$
Powers	as a 'root'.	
	The numerator of a fractional newscapets as	$(25)^{\frac{3}{2}}$ $(\sqrt{25})^{\frac{3}{2}}$ $(5)^{\frac{3}{2}}$ $(5)^{\frac{3}{2}}$
	The numerator of a fractional power acts as	$\left(\frac{25}{16}\right)^{\frac{3}{2}} = \left(\frac{\sqrt{25}}{\sqrt{16}}\right)^3 = \left(\frac{5}{4}\right)^3 = \frac{125}{64}$
	a normal power.	$(16)  (\sqrt{16})  (4)  64$
	$\underline{m}$ $(n)$	
	$a^{\frac{m}{n}} = (\sqrt[n]{a})^m$	

