Topic/Skill	Definition/Tips	Example
1. Square	The number you get when you multiply a	1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121,
Number	number by itself.	144, 169, 196, 225
		$9^2 = 9 \times 9 = 81$
2. Square Root	The number you multiply by itself to get	$\sqrt{36} = 6$
	another number.	
		because $6 \times 6 = 36$
	The reverse process of squaring a number.	
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 multiply a	1, 8, 27, 64, 125
Number	number by itself and itself again.	$2^3 = 2 \times 2 \times 2 = 8$
5. Cube Root	The number you multiply by itself and	$\sqrt[3]{125} = 5$
	itself again to get another number.	
		because $5 \times 5 \times 5 = 125$
( P	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.	21 2
		$3^1 = 3$
		$3^2 = 9$
		$3^3 = 27$
_		$3^4 = 81 \text{ etc.}$
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	$m \dots n \qquad m+n$	$4x^5 \times 2x^8 = 8x^{13}$
0 Dininin	$a^m \times a^n = a^{m+n}$	$15^7 \div 15^4 = 15^3$
8. Division	When <b>dividing</b> with the same base (number	$15^7 \div 15^7 = 15^3$ $x^9 \div x^2 = x^7$
Index Law	or letter), subtract the powers.	
	$a^m \div a^n = a^{m-n}$	$20a^{11} \div 5a^3 = 4a^8$
O Proplets		(2\510
9. Brackets	When raising a power to another power,	$(y^{2})^{5} = y^{10}$ $(6^{3})^{4} = 6^{12}$ $(5x^{6})^{3} = 125x^{18}$
Index Laws	multiply the powers together.	$(0^{\circ})^{\circ} = 0^{\circ \circ}$
	$(a^m)^n - a^{mn}$	$(5x^2)^2 = 125x^{22}$
10. Notable	$(a^m)^n = a^{mn}$ $p = p^1$	$99999^0 = 1$
Powers	$\left  egin{array}{c} oldsymbol{p} = oldsymbol{p}^- \ oldsymbol{p}^0 = oldsymbol{1} \end{array} \right $	99999 — 1
11. Negative	$p^{\circ} = 1$ A negative power performs the reciprocal.	1 1
Powers	1	$3^{-2} = \frac{1}{3^2} = \frac{1}{9}$
1 OWEIS	$a^{-m} = \frac{1}{a^m}$	3* 9
12. Fractional	$a^{-m} = \frac{1}{a^m}$ The denominator of a fractional power acts	2 (3/
Powers	as a 'root'.	$27^{\frac{2}{3}} = \left(\sqrt[3]{27}\right)^2 = 3^2 = 9$
1011015	40 W 1000 .	
	The numerator of a fractional power acts as	$(25)^{\frac{3}{2}} (\sqrt{25})^3 (5)^3 125$
	a normal power.	$\left(\frac{25}{16}\right)^{\frac{3}{2}} = \left(\frac{\sqrt{25}}{\sqrt{16}}\right)^3 = \left(\frac{5}{4}\right)^3 = \frac{125}{64}$
	r	(10) (16) (4) 04
	$a^{\frac{m}{n}} = (\sqrt[n]{a})^m$	
	$u^n = (va)$	

