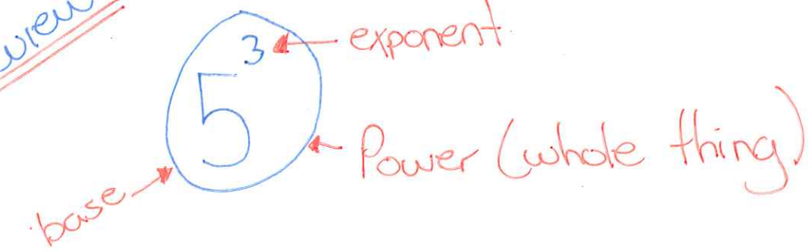
M9 UNIT 1

2.2 Powers of 10 and Zero Exponent

Review



Exponents mean repeated multiplication

$5^3 \rightarrow 5 \times 5 \times 5 \rightarrow 125$

exponential form	Repeated Multiplication	Standard Form

$-1 \cdot 2^4$ IS NOT $(-2)^4$

$-2^4 = -1(2 \cdot 2 \cdot 2 \cdot 2) = -16$ (16)

$(-2)^4 = (-2)(-2)(-2)(-2)$

even # ⊖ sign	= ⊕ answer
odd # ⊖ sign	= ⊖ answer

New

10	000	000	10^7
1	000	000	10^6
	100	000	10^5
	10	000	10^4
	1	000	10^3
		100	10^2
		10	10^1
		1	10^0

$10^2 = \frac{100}{2}$

This works for ANY base (not zero) # ---

$10^0 = 1$ $\quad 6^0 = 1$ $\quad [* -5^0 = -1 *]$

$13^0 = 1$ $\quad (-5)^0 = 1$

Ex: Evaluate [do math]

a) $4^0 = 1$ $\quad$ b) $-4^0 = -1$ $\quad$ c) $(-4)^0 = 1$

n = number

Zero Exponent Law: $n^0 = 1$, $n \neq 0$

A power with a non-zero integer base and an exponent of zero equals 1

Writing # Using Powers of 10

write 3452 using powers of 10

Place Value Chart

10^3	10^2	10^1	10^0
1000	100	10	1
×	×	×	×
3	4	5	2

$(3 \times 1000) + (4 \times 100) + (5 \times 10) + (2 \times 1)$

$(3 \times 10^3) + (4 \times 10^2) + (5 \times 10^1) + (2 \times 10^0)$

HW	A	B	C
	4-6	8-11	13-14