

# M9 - Remember

Real Numbers (R)		Metric Prefix
$(\dots -\frac{3}{1}, -\frac{5}{2}, -\frac{1}{1}, -\frac{1}{7}, \frac{0}{1}, \frac{1}{13}, \frac{1}{17}, \frac{2}{3}, \frac{1}{1}, \frac{2}{1}, e, \pi, \sqrt{2}, \dots)$		
<b>Irrational Numbers (Q')</b> <b>Decimal:</b> Doesn't End or Repeat <b>Can't be expressed as a Fraction</b> $(\dots, e, \pi, 5.49\dots, \sqrt{2}, \dots)$	<b>Rational Numbers (Q)</b> <b>Decimal:</b> Ends or Repeats <b>Can be expressed as a Fraction</b> $(\dots -\frac{2}{1}, -\frac{3}{2}, \frac{1}{2}, 0.\bar{6}, \frac{3}{1}, \dots)$	<b>Metric Prefix</b> Tera T $10^{12}$ Giga G $10^9$ Mega M $10^6$ Kilo k $10^3$ Hecto h $10^2$ Deca da $10^1$ Base $10^0$ Deci d $10^{-1}$ Centi c $10^{-2}$ Milli m $10^{-3}$ Micro $\mu$ $10^{-6}$ Nano n $10^{-9}$ Pico p $10^{-12}$
	<b>Integers (I or Z)</b> $(\dots -2, -1, 0, 1, 2, \dots)$	
	<b>Whole Numbers (W)</b> $(0, 1, 2, 3, \dots)$	
	<b>Natural Numbers (N)</b> $(1, 2, 3, \dots)$	

**Exponents: Mistakes**

Never multiply the base by the Exponent

$2^3 \neq 2 \times 3$        $2^3 = 2 \times 2 \times 2$   
 $3^2 \neq 3 \times 2$        $3^2 = 3 \times 3$

Need same base!

$2^3 \times 5^2 \neq 10^5$        $200 \neq 100000$

Same Exponent  $\rightarrow$  Multiply Bases

$2^3 \times 5^3 = 10^3$        $1000 = 1000$

No Rules for Addition/Subtraction

$2^2 + 3^2 \neq 5^2$        $3^2 - 2^2 \neq 1^2$   
 $4 + 9 \neq 25$        $9 - 4 \neq 1$

Negative Coefficients

$2^3 = 8$	$2^4 = 16$	Negative numbers without brackets stay negative $-2^3 = -8$ $-2^4 = -16$
Negative numbers with brackets to odd exponents stay negative. $(-2)^3 = -8$	Negative numbers with brackets to even exponents become positive $(-2)^4 = 16$	Unnecessary brackets $-(2)^3 = -8$ $-(2)^4 = -16$ $(-2^3) = -8$ $(-2^4) = -16$
$-(-2)^3 = 8$	$-(-2)^4 = -16$	

**Polynomials**

Remember Circle/Cloud/Box the term's sign!

$2 - 2x + 3 + 4x$   
 $= 2 + 3 - 2x + 4x$   
 $= 5 + 2x$

$\angle ABC = \angle B = 60^\circ$

**Inequality:**

The alligator eats bigger number

Divide/Multiply by a negative:  
Change the direction of sign

Greater than:  $>$   
 Greater than or equal to:  $\geq$   
 Less than:  $<$   
 Less than or equal to:  $\leq$   
 Does not equal:  $\neq$

$-x < 5$ $x > -5$	$5 \triangleleft 8$	Between $-1 \leq x < 3$	$\leq, \geq$ • [ ] ——— Included (closed, square, solid)
			$<, >$ ○ ( ) $(-\infty, \infty)$ - - - - Not Included (open, round, dotted)