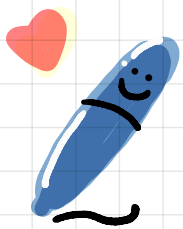
1.1) Numbers



Order of Operations

B I D M A S

Brackets
Indice
Division
Multiplication
Addition
Subtraction

$\square^2$ or $\sqrt{\square}$ or...

Review : $3x^2 = x \xrightarrow{\square^2} x^2 \xrightarrow{\times 3} 3x^2$

$(3x)^2 = x \xrightarrow{\times 3} 3x \xrightarrow{\square^2} (3x)^2$

Example: $15 - 7^2 + 12 \div (2+1)$

Example: $e = (f-7)^2 + \frac{4g}{h+1}$ Find value of e when

$f = 4$, $g = 9$, $h = -2$

Exercise: $D = \frac{3A^2 + 5B}{4(C+3)}$; Show that $D = 7$

when $A = -1$, $B = 5$, $C = -2$

Numbers:Numbers.

Calculator

Ans ⇝ This uses last answer in your current calculation

S⇔D ⇝ Fraction or Surd to decimal (Estimate)

SHIFT = Yellow

$\sqrt[3]{\square}$ ⇝ the cube root

$a\frac{b}{c} \leftrightarrow \frac{d}{c}$ ⇝ Change between Mixed number and Improper Fraction.

$\square\frac{\square}{\square}$ ⇝ Mixed number

Brackets with Calculator.

Power

$2^2 \longrightarrow$

$(2)^2 \longrightarrow$

$2^3 \longrightarrow$

$(2)^3 \longrightarrow$

$-2^2 \longrightarrow$

$(-2)^2 \longrightarrow$

$-2^3 \longrightarrow$

$(-2)^3 \longrightarrow$

Trigonometry

$\tan 60°$

$\frac{3.25}{\cos 60°}$

Example: Work out $\frac{\sqrt[3]{8.67-4}}{4\sin 60}$

write down all the figures on your calculator display.

Example: Work out $3\frac{4}{7}+\sqrt{\frac{3}{4}}$ (2 dp.)

Numbers:Numbers.

Types of number

Intergers

- Positive integer → 1, 2, 3, 4, ...
- Zero → 0
- Negative integer → -1, -2, -3, -4, ...

Natural numbers → Positive integer → 1, 2, 3, 4, ...

Whole numbers → 0, 1, 2, 3, 4, ...

Numbers:Numbers.

Square numbers

1 4 9 16 25 36 49 64 81 100 ...

Cube numbers

1 8 27 64 125

Numbers:Numbers.

Square Roots ($\sqrt{}$)

$\sqrt{49} = 7$

$\sqrt{121} =$

$\sqrt{29.16}$

$\sqrt{8}$

Numbers:Numbers.

Cube Roots ($\sqrt[3]{\ }$)

$\sqrt[3]{125} =$

$\sqrt[3]{3375} =$

$\sqrt[3]{4.913} =$

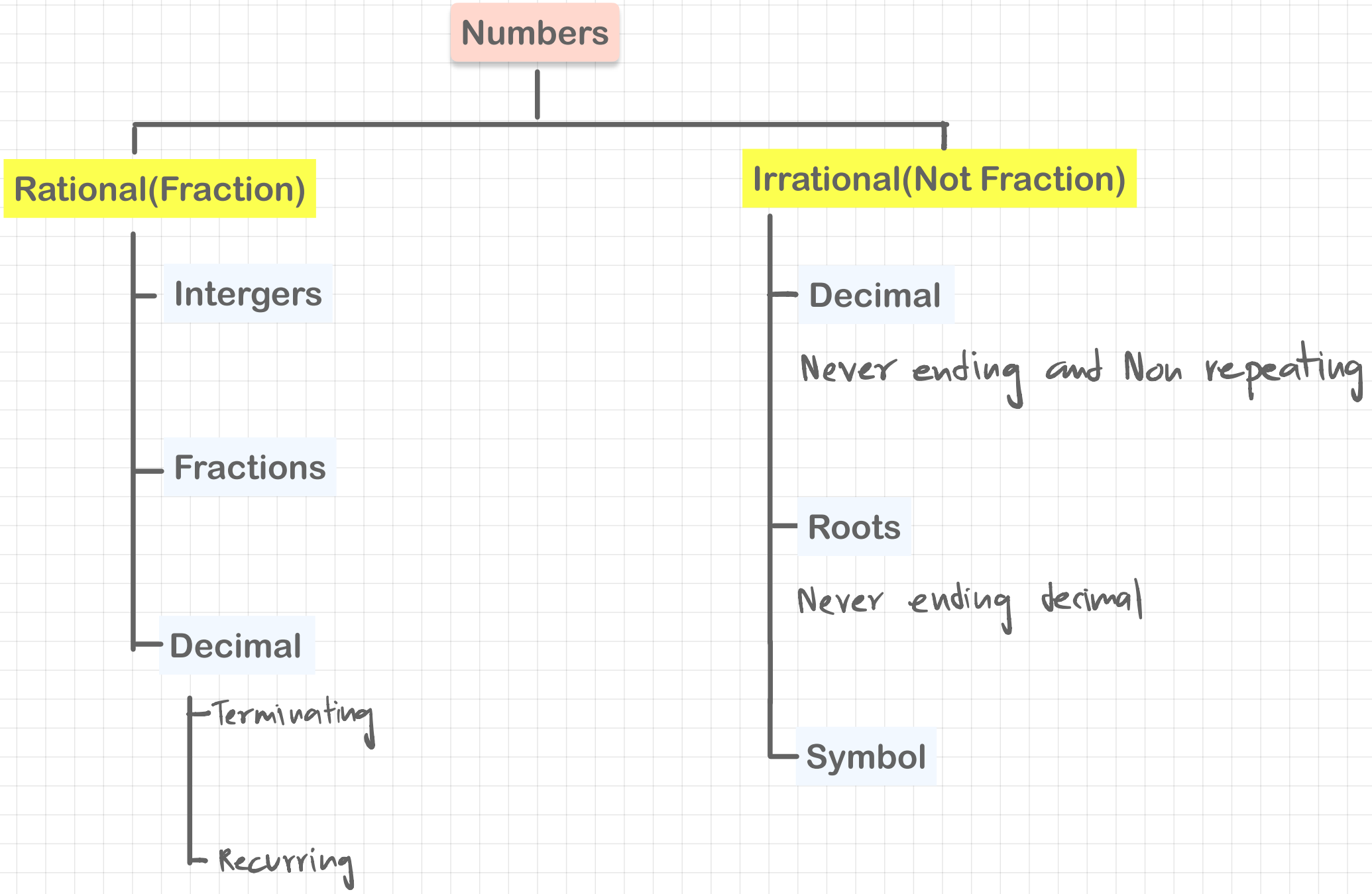
$\sqrt[3]{9} =$

Extra: $\sqrt{\square} \rightarrow \square \geq 0$

: $\sqrt[3]{\square} \rightarrow \square$ Any values

Numbers:Numbers.

TOP Maths IGCSE



Numbers:Numbers.

Prime Numbers

2 3 5 7 11 13 17 19 23 29 31

"1" is not a prime numbers

"2" is the only even prime numbers

Numbers:Numbers.

Check!!!!!

73

131

57

Numbers:Numbers.

Multiples

Multiples of 3

Multiples of 12

Factors

Factors of 3

Factors of 12

Factors of 75

Numbers:Numbers.

Product of prime factors (The Factor Tree)

Example:Express 240 as a product of power of prime factor.

Product of prime factor

Product of power of prime factor

Exercise: Express 280 as a product of power of prime factor.

Product of prime factor

Product of power of prime factor

Numbers:Numbers.

LCM and HCF

LCM-Lowest Common Multiple

The smallest number that will divide by all the numbers in question

(Big value)

HCF-Highest Common Factor

The biggest number that will divide into all the numbers in question

(Small value)

Numbers:Numbers.

Example:Find HCF and LCM of 90,150

Example: Find HCF and LCM of A and B .

$A = 2^3 \times 3^5 \times 5$

$B = 2 \times 3^2 \times 5^2 \times 7$

Example: Find HCF and LCM of A and B .

$A = 2^5 X^3 Y^4$

$B = 2^3 (5) X^7 Y^3$

Extra : $(X_1)(X_2)$ = (HCF of X_1 and X_2)(LCM of X_1 and X_2)

HCF of 90 and 150 is 30

LCM of 90 and 150 is 450

Extra : $(X_1)(X_2)$ = (HCF of X_1 and X_2)(LCM of X_1 and X_2)

Example: x and 147 have HCF = 21 and LCM = 735. Find value of x.

Example: Find HCF and LCM of A and B .

$$A = 2^5 X^3 Y^4$$

$$B = 2^3 (5) X^7 Y^3$$

Example: Find HCF and LCM of A , B and C.

$A = 2^4 \times 3 \times 7$

$B = 2^3 \times 3^2 \times 5$

$C = 2^2 \times 5 \times 7$

Reciprocal number

Reciprocal of 5

Reciprocal of -2

Reciprocal of $\frac{3}{4}$

Reciprocal of $-\frac{5}{7}$

Reciprocal of x

Reciprocal of $\frac{1}{4}$