Maths Knowledge Organiser
YEAR 9 HIGHER – UNITS 6 to 7

chaseterraceacademy

Key Language

1	Recurring	A number that repeats after the decimal point forever
2	Rational	A recurring number that has a predictable pattern
3	Irrational	A recurring number that has no pattern
4	Approximate	Use a close value (not an exact value)
5	Round	Make a number simpler (by approximating)
6	Decimal places	Number of decimal places a number has/should have
7	Significant Figures	The number of digits that are meaningful (the ones with the highest place value)
8	Equivalence	When two or more things have the same value
9	Error	Difference between the actual value and measured/calculated value
10	Error interval	The range of values an error can occur between
11	Bounds	The limits of an error interval
12	Upper bound	The greatest possible number in the error range
13	Lower bound	The smallest possible number in the error range
14	Discrete	Numbers that can take specific values
15	Continuous	Numbers that can take any value

Make sure you recognise:

Significant figures:

just to look nice
not significant (any zero at start)

0.0560

1st significant digit
2nd significant digit
3rd significant digit
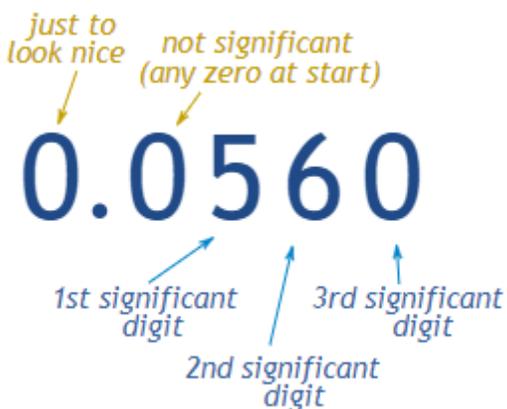
Recurring decimals:

$$\frac{1}{3} = 0.333... = 0.\dot{3} = 0.\overline{3}$$

Fraction   Ways to show recurring decimals

Rational and Irrational:

$1.5 = \frac{3}{2}$ — Ratio
Rational

$\pi = 3.14159... = \frac{?}{?}$ (No Ratio)
Irrational

Know

Notes Section:

Error intervals:

$$LB \leq X < UB$$

$$8.5\,m \leq X < 9.5\,m$$

$$8.9 \approx 9$$

8.9 is approximately equal to 9

Data

Qualitative
"It was great fun"

Quantitative

Discrete

•• 5

Continuous

3.265...
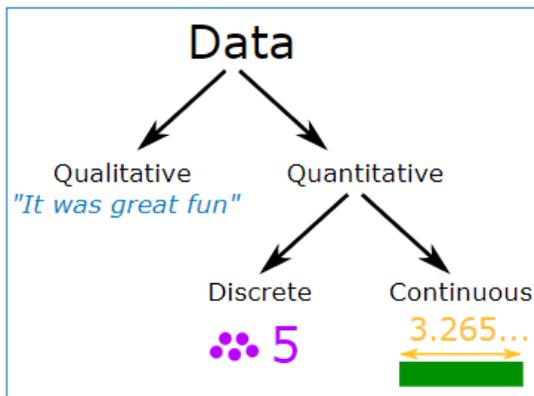
ORDER OF
OPERATIONS

G	GROUPING SYMBOLS () {} []
E	EXPONENTS 3^2 x^2 10^5
M	MULTIPLICATION **OR** DIVISION GO FROM LEFT TO RIGHT
S	SUBTRACTION **OR** ADDITION GO FROM LEFT TO RIGHT

Know

PRACTICE QUESTIONS

1. What type of decimal carries on forever?

2. What type of number is π?

3. Is 3.45454545... rational or irrational?

4. What word describes using a close value?

5. What does rounding do?

6. How many decimal places is 3.84 rounded to?

7. What is the first significant number in 167.45

8. What is the third significant number in 10.24?

9. What is the second significant number in 0.473?

10. What is the third significant number in 103.9?

11. What do we call the largest possible value in the error range?

12. What is the upper bound if 6.5 has been rounded to 1 decimal place?

13. What is the lower bound if 110 has been rounded to the nearest 10?

14. What signs are used in an error interval?

15. If 16 has been rounded to two significant figures, what is the error interval?

16. What type of data is shoe size an example of?

17. Why is shoe size this type of data?

18. What type of data is height?

19. Why is height this type of data?

ANSWERS

1. Recurring
2. Irrational
3. Rational
4. Approximate (estimate)
5. Makes numbers simpler
6. 2
7. 1
8. 2
9. 7
10. 3
11. Upper bound
12. 6.55
13. 105
14. ≤ and <
15. $15.5 \leq x < 16.5$
16. Discrete
17. It can only take certain values
18. Continuous
19. It's measured (can be more accurate, take any value)

Do