|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Topic: Accuracy**     |  |  |  | | --- | --- | --- | | **Topic/Skill** | **Definition/Tips** | **Example** | | 1. Place Value | The **value** of where a **digit** is within a number. | In 726, the value of the 2 is 20, as it is in the ‘tens’ column. | | 2. Place Value  Columns | The names of the columns that **determine the value of each digit**.    The ‘ones’ column is also known as the ‘units’ column. |  | | 3. Rounding | To make a number simpler but keep its value close to what it was.    If the **digit to the right** of the rounding digit is **less than 5, round down**. If the **digit to the right** of the rounding digit is **5 or more, round up**. | 74 rounded to the nearest ten is 70, because 74 is closer to 70 than 80.    152,879 rounded to the nearest thousand is 153,000. | | 4. Decimal  Place | The **position** of a digit to the **right of a decimal point**. | In the number 0.372, the 7 is in the second decimal place.    0.372 rounded to two decimal places is 0.37, because the 2 tells us to round down.    Careful with money - don’t write £27.4, instead write £27.40 | | 5. Significant  Figure | The significant figures of a number are the digits which **carry meaning** (ie. are significant) to the size of the number.    The **first significant figure** of a number **cannot be zero**.    In a number with a decimal, trailing zeros are not significant. | In the number 0.00821, the first significant figure is the 8.    In the number 2.740, the 0 is not a significant figure.    0.00821 rounded to 2 significant figures is 0.0082.    19357 rounded to 3 significant figures is 19400. We need to include the two zeros at the end to keep the digits in the same place value columns. | | 6. Truncation | A method of approximating a decimal number by **dropping all decimal places** past a certain point **without rounding**. | 3.14159265… can be truncated to 3.1415 (note that if it had been rounded, it would become 3.1416) | | 7. Error  Interval | A **range of values** that a number could have taken before being rounded or truncated.    An error interval is written using inequalities, with a **lower bound** and an **upper bound**. | 0.6 has been rounded to 1 decimal place.    The error interval is:    0.55 ≤ 𝑥 < 0.65    The lower bound is 0.55  The upper bound is 0.65 | |
| |  |  |  | | --- | --- | --- | |  | Note that the lower bound inequality can be  ‘equal to’, but the upper bound cannot be ‘equal to’. |  | | 8. Estimate | To find something **close to the correct answer**. | An estimate for the height of a man is 1.8 metres. | | 9.  Approximation | When using approximations to estimate the solution to a calculation, **round each number in the calculation to 1 significant figure**.    ≈ means ‘approximately equal to’ | 0.526 0.5  348  +  692  ≈  300  +  700  =  2000    ‘Note that dividing by 0.5 is the same as multiplying by 2’ | | 10. Rational  Number | A number of the form 𝒑**,** where 𝒑 **and** 𝒒 **are**  𝒒  **integers** and 𝒒 ≠ 𝟎.    A number that cannot be written in this form is called an ‘irrational’ number |  | | 11. Surd | The **irrational number** that is a **root of a positive integer,** whose value cannot be determined exactly.    Surds have **infinite non-recurring decimals**. | is a surd because it is a root which  cannot be determined exactly.    … which never  repeats. | | 12. Rules of  Surds | 𝒂    𝒂 |  | | 13. Rationalise a Denominator | The process of rewriting a fraction so that the **denominator contains only rational numbers**. |  | |