21. Budapest

I can recognize the value of all digits including decimals.

2 387 948.637 represents 2 000 000
2 **3**87 948.637 represents 300 000
2 3**8**7 948.637 represents 80 000
2 38**7** 948.637 represents 7 000
2 387 **9**48.637 represents 900
2 387 9**4**8.637 represents 40
2 387 94**8**.637 represents 8
2 387 948.**6**37 represents 0.6
2 387 948.6**3**7 represents 0.03
2 387 948.63**7** represents 0.007

I can count forward and backwards in thousandths.

Forwards

0, 0.001, 0.002, 0.003, 0.004, 0.005, 0.006, 0.007, 0.008, 0.009, 0.01, 0.011, 0.012, 0.013,

$0, \frac{1}{1000} \frac{2}{1000} \frac{3}{1000} \frac{4}{1000} \frac{5}{1000} \frac{6}{1000} \frac{7}{1000} \frac{8}{1000} \frac{9}{1000} \frac{10}{1000}$

Backwards

0.02, 0.019, 0.018, 0.017, 0.016, 0.015, 0.014, 0.013, 0.012, 0.011, 0.01, 0.009, 0.008, 0.007, 0.006, 0.005, 0.004, 0.003, 0.002, 0.001, 0

$\frac{10}{1000} \frac{9}{1000} \frac{8}{1000} \frac{7}{1000} \frac{6}{1000} \frac{5}{1000} \frac{4}{1000} \frac{3}{1000} \frac{2}{1000} \frac{1}{1000} 0$

I can round any whole number to the nearest 10, 100, 1,000, 10,000 or 100,000.

The rule is the same no matter which digits we are talking about.
*If the digit after the one you are rounding is 0, 1, 2, 3 or 4 then the digit you are rounding stays the same. (E.g. 35**6**39 rounded to the nearest 100 is 35600)
*If the digit after the one you are rounding is 5, 6, 7, 8 or 9 then the digit you are rounding goes up by 1. (E.g. 3**5**639 rounded to the nearest 1000 is 36000)

I can recall square roots of all square numbers to 144 and use the notation of square root (√).

√1 = 1	√49 = 7
√4 = 2	√64 = 8
√9 = 3	√81 = 9
√16 = 4	√100 = 10
√25 = 5	√121 = 11
√36 = 6	√144 = 12

Square root ($\sqrt{\ }$) is the **inverse** (opposite) of squaring a number.

I can read and write years in Roman Numerals.

I = 1	IV =4
V = 5	IX = 9
X = 10	XL = 40
L = 50	XC = 90
C = 100	CD = 400
D = 500	CM = 900
M = 1000	

The date: 24/9/2018 is written as XXIV/IX/MMXVIII

General rule for Roman Numerals:

Numbers are represented by putting the symbols into various combinations in different orders. The symbols are then added together, for example, I + I + I, written as III, is 3. To write 11 we add X (10) and I (1) and write it as XI. For 22 we add X and X and I and I, so XXII.

Roman numerals are usually written in order, from largest to smallest and from left to right, but more than three identical symbols never appear in a row. Instead, a system of subtraction is used: when a smaller number appears in front of a larger one, that needs to be subtracted, so IV is 4 (5 - 1) and IX is 9 (10 - 1).

22. Zagreb

I can find simple percentages of amounts, e.g. 50%, 25%, 10%, 5%, 1%.

To find:
1% divide the number by 100
5% divide the number by 10 and the by 2
10% divide the number by 10
25% divide the number by 4
50% divide the number by 2

To find 6% find 5% and 1%, then add the answers together.

To find 75% find 50% and 25%, then add the numbers together.

E.G. 5% of 60 is 3 (60 ÷ 10 = 6 then 6 ÷ 2 = 3)

I can multiply any 1-digit number with up to 3-decimal places (3dp) by any whole number up to 10.

	6	.	3	4	5
x					6
3	8	.	0	7	0
3	2		2	3	

I can recognize and use equivalent fractions.

If you are asked to put fractions in ascending or descending order and they all look different you need to use fractions with the same denominator to help sort them. E.G.:

1/5, ¾, ½, ¼ , 3/5

Make the denominator the same for all of these. Lowest common multiple is 20 for these denominators. These fractions become:

4/20, 15/20, 10/20, 5/20 and 12/20

These can then be put in order in their original form. (Ascending order here)

1/5, ¼, ½, 3/5, ¾

I can use and explain simple formulae.

The formula to find the **area of a triangle** is:

½bh

This means you find the base of the triangle multiply that by the height of the triangle and the divide it by 2.

E.G.: a triangle where **h = 6cm** and **b = 5cm** has an area of 6 x 5 = 30 30 ÷ 2 = **15cm²**

Remember: if there are two letters next to each other you should multiply them together.

I can add and subtract fractions with different denominator and mixed numbers.

Addition and subtraction of fractions is very similar. The only difference is at the end when you either add or subtract depending on the sign.

Example: 4 3/8 + 3 5/6

- Find the lowest common multiple of the denominators –
  8, 16, **24.**
  6, 12, 18, **24.**
- Use this to help you find the equivalent fractions.

$$4\,\frac{9}{24}\ \frac{(3\times3)}{(8\times3)} \quad + \quad 3\,\frac{20}{24}\ \frac{(5\times4)}{(6\times4)}$$

- These can now be added. Start by adding the whole numbers **4+3=7**.
- Then add the numerators of the fractions. **(Remember you never add the denominators!) 9+20 =29**
- This gives the answer **7 29/24**.
- However, the **29** as a numerator is larger than the denominator. This means it is an improper fraction and should be **1 5/24**.
- Add this to the 7 and the answer is **8 5/24**

23. Bucharest

I can estimate square roots for numbers up to 144 and explain my reasoning. Estimating the square root of 90: • Find the 2 square numbers which are either side of your number. In this case it is 81 (9x9) and 100 (10x10). • So the square root of 90 is between 9 and 10. • It lies about half way between the two so a good estimate would be 9.5. This would be the same method for any number up to 144.	I can estimate cube roots for numbers up to 1,000 and explain my reasoning. Estimating the cube root of 540: • Find the 2 cube numbers which lie either side of your number. In this case it is 512 (8^3) and 729 (9^3). • The cube root of 512 is 8 and the cube root of 729 is 9, so the cube root of 540 is between 8 and 9. • It lies closer to 512 so a good estimate would be 8.1 or 8.2. This would be the same method for any number up to 1000.
I can calculate, using negative numbers in contexts including across 0, and explain the effect, e.g. 18°C - -28°C = 46° C. The temperature in the freezer is -28°C. A loaf of bread is taken out of the freezer and allowed to thaw overnight in the kitchen, where the temperature is 18°C. What is the difference in temperature? From 28°C to 0°C is 28°. You do not need the minus sign. Then from 0°C to 18°C is 18°C. 18+28= 46°C. This can be written as 18-(-28). Two minus signs together mean you need to add the numbers.	I can estimate the product of two 2-digit numbers using rounding to the nearest 10. **36 x 49** • Round each number to the nearest 10: **40 x 50** • Multiply the tens digits: **4x5=20** • Multiply 20 by 10 from the 40: **200** • Then multiply 200 by 10 from the 50: **2000** A good estimate for 36 x 49 is 2000 We could write it like this: **36 x 49 ≈ 2000**
I can round numbers to 3 significant figures (sf). Rounding significant figures is the same as normal rounding. The only difference is you have to work out what a significant figure (sf) is! Rounding the number off to 3 significant figures means you require 3 non-zero digits from the start of the number. **So for example**: 27.1258 is rounded to 27.1. 3.12845 is rounded to 3.13. 91472 is rounded to 91500. 0.00017594 is rounded to 0.000176. **Zero can be a significant figure if it is between two non- zero values: e.g. 7,093,654 would be rounded to 7,090,000**	I can use factors to simplify and solve division problems. Example: **1020 ÷ 6** Both of these are divisible by 2 as they are both even numbers. This means the division can become: **510 ÷ 3** Both of these are divisible by 3 as 5+1+0 =6 and a multiple of 3! This means that the division would become: **170 ÷ 1** So the answer to the original calculation is **170**