

Weekly Quiz

Questions:

Week 15 – Solutions to the maths office by Thursday 16th December

1. Charlie said to Dominic "If you give me one marble, then we will have an equal number of marbles."

Dominic replied with delight, "If you give me one marble then I will have double the number you have!"

How many did Charlie have and how many did Dominic have?

2. In 2004, on Rodney's birthday, he announces that the sum of the digits of the year of his birth is equal to his age. How old is he?
3. The 5 volumes of a biography of Queen Victoria appeared at five year intervals, and the sum of the publication years was 9875. When was the first volume published?
4. Using the digits 1 to 9 in their correct numerical order and putting in + and - signs, we can make the answer 1.

$$1 + 2 - 3 + 4 - 5 - 6 + 7 - 8 + 9 = 1$$

If you change some of the + and - signs which of the numbers from 2 to 10 inclusive can you make?

5. In February 2004 the Royal Bank of Scotland published a survey of more than 1000 sixteen year olds. 88% own a TV, 86% own a stereo and 84% own a mobile phone.

What is the smallest percentage that can own all three?

Weekly Quiz

Solutions:

Week 15 – 09/12/04

1. Charlie has 5 and Dominic has 7

$$C + 1 = D - 1$$

$$2(C - 1) = D + 1$$

$$\text{Therefore } 2C - 2 = C + 3$$

$$C = 5$$

2. 1983 so his age is 21

3. If you let y equal the middle year then

$$5y = 9875 \text{ therefore } y = 1975$$

so first volume published in 1965

4. You can only get the odd numbers

$$\text{Eg. } 1 - 2 + 3 + 4 - 5 - 6 + 7 - 8 + 9 = 3$$

$$1 - 2 + 3 - 4 + 5 - 6 + 7 - 8 + 9 = 5$$

$$1 - 2 + 3 - 4 - 5 + 6 + 7 - 8 + 9 = 7$$

$$1 - 2 + 3 - 4 - 5 + 6 - 7 + 8 + 9 = 9$$

5. $100 - 88 = 12$

$$100 - 84 = 16$$

$$100 - 86 = 14$$

$$12 + 16 + 14 = 42$$

Therefore smallest number that can own all three is $100 - 42 = 58$