|  |  |
| --- | --- |
| **Question** | **Answer** |
| **1** | **143** and **256** |
| **2** | **318** |
| **3** | **421** |
| **4** | **395** |
| **5** | **685** |
| **6** | **815** |



The sum of the digits is less than 15

The third digit is 3 times the first -  this means the Hundreds digits are        1, 2 or 3

                                                                                    units digit is either      3, 6 or 9

The second digit is 3 more than the first so digit 2 would be                         4, 5 or 6

Giving three possibilities so far: 143          256 or             369

We can **rule out 369** as the digits **total 18** leaving only 2 possible solutions

**143** and **256**



For this one we know the number is **even**, it therefore must end in **0,2,4,6** or **8**

Given the 2nd digit is **7 less** than the **third** we know the **third digit must be 8**

If the 2nd digit is **7 less than 8** it has to be **1**, meaning the **first digit is 1 + 2 = 3**

So our only answer here is **318**



Firstly if the number is **odd** I know the third digit must be 1,3,5,7,or 9. We can rule out 9,7 and 5 straight away and they are too large to give a sum of 7 for all three digits.

The first digit is twice the second digit meaning that if the first digit is either 2 or 4 (it can’t be any higher as the sum would then be greater than 7) and the 2nd digits would be 1 or 2

Putting that all together if the **first digit** is **2** the **second** is **1** and the **third digit is must be 4 to equal to 7** but the **third number must be odd** so this combination must be ruled out.

Our only other option is the first digit is 4 the second is 2 and the third digit is 1 our number **421** when added equals to 7.



The locker number is greater than 200, this means that our **first digits can be 2,3**,4,5,6,7,8 or 9

We can **rule out** **4,5,6,7,8 and 9** for the first digit as when they are **tripled** they become **2 digit numbers**.

The second digit is triple the first meaning the **second digit** is either **6** or **9**

The third digit is 4 less than the second meaning it is 2 or 5 (it rules 3 out of being a possibility for the second digit)

So our possibilities are: 262 – there is only one number two so this can be ruled out giving an

**only possible answer of: 395**

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The locker number is odd meaning digit three must be 1,3,5,7 or 9

The first digit is 1 more than the third meaning we can rule out 9 for digit 3.

The second digit is 2 more than the first meaning we can rule out 7 for the final digit.

So lets try out the various options using a table :

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Digit 1 (H) | Digit 2 (T) | Digit 3(U) | Sum >15 | PossibleY or N |
| 2 | 4 | 1 | X | N |
| 4 | 6 | 3 | X | N |
| 6 | 8 | 5 | Y | Y |

**Our only answer option is 685**



Once again our locker number is **odd** so the third digit must be 1,3**,5,7** or **9**

The second digit is 4 less than the third meaning we can rule out 1 and 3 for the third digit, and our only **options** for **digit two are: 1,3 or 5**

The **first digit** is **7 more than the second digit** meaning the **second digit** can only be **1**

**Our answer is therefore: 815**