

Main_2

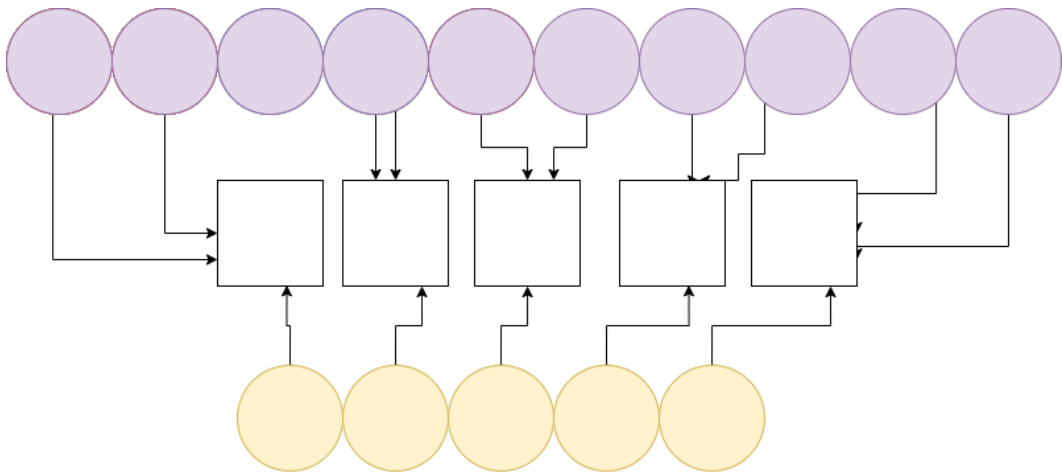
Obito must use **every** marble. Each marble color must be placed in equal quantities across bags.

Obito should determine how many bags he would need firstly.

Obito would need to find the maximum number(of bags) where all three colors of marble can be divided equally into them.

i.e. 4 blue marbles in every bag // 12 green marbles in every bag

for example: 10 purple marbles and 5 Yellow Marbles.



This is the Greatest number of bags where both purple and yellow marbles can be placed into a bag in equal quantities(Common to both marbles). i.e. not leaving any remainders(dDivisor).

2 purple in EVERY bag. 1 yellow in EVERY bag. This can be done with no remainder marbles.

GCD = Greatest Common Divisor

Now to help Obito specifically.

Obito has:

6533 blue marbles

7097 green marbles

6157 red marbles

To find the GCD he may make use of Euclidian Algorithm.

$$\text{GCD}(a, b) = \text{GCD}(b, a \bmod b)$$

We can use the alorithm below when we have more than three numbers.

$$\text{GCD}(a,b,c) = \text{GCD}(a, \text{GCD}(b,c))$$

$$\text{GCD}(6533, 7097)$$

$$\text{GCD}(7097, 6533, 6157)$$

$$\text{GCD}(7097, \text{GCD}(6533, 6157))$$

$$\text{GCD}(7097, \text{GCD}(6533, 6157))$$

$$\text{GCD}(7097, \text{GCD}(6157, 6533 \bmod 6157))$$

$$\text{GCD}(7097, \text{GCD}(6157, 376))$$

$$\text{GCD}(7097, \text{GCD}(376, 6157 \bmod 376))$$

$$\text{GCD}(7097, \text{GCD}(376, 141))$$

$$\text{GCD}(7097, \text{GCD}(141, 376 \bmod 141))$$

$$\text{GCD}(7097, \text{GCD}(141, 94))$$

$\text{GCD}(7097, \text{GCD}(94, 141 \bmod 94))$

$\text{GCD}(7097, \text{GCD}(94, 47))$

$\text{GCD}(7097, \text{GCD}(47, 94 \bmod 47))$

$\text{GCD}(7097, \text{GCD}(47, 0))$

$\text{GCD}(7097, 47)$

$\text{GCD}(47, 7097 \bmod 47)$

$\text{GCD}(47, 0)$

The GCD of the three numbers are 47. This means that all three types of marbles may be equally deposited into 47 bags(maximum).

To determine how many marbles of a color per bag, Obito must divide 47 by the number of marbles(per color).

As follows:

$6533 \div 47 = 139$ Blue marbles per bag

$7097 \div 47 = 151$ Green marbles per bag

$6157 \div 47 = 131$ Red marbles per bag

WORKING REQUIRED FOR THIS DIVISION

Conclusion

Obito must buy 47 party bags.

Obito must place 139 Blue marbles in each bag.

Obito must place 151 Green marbles in each bag.

Obito must place 131 Red marbles in each bag.

