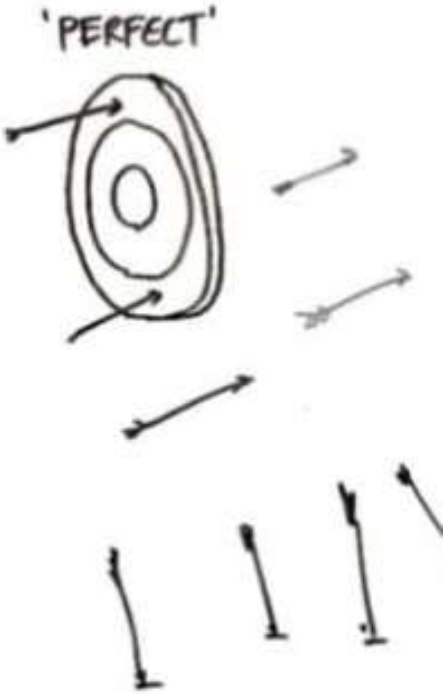
- Practice:
  1. The six digit number 54321A is divisible by 9 where A is a single digit whole number. Find A.
  2. Find the greatest 6-digit number, which is a multiple of 12.
  3. Simplify the expression using BODMAS rule $(105 + 206) - 550 \div 5^2 + 10$
  4. What is the difference between the greatest 5 digit number and the smallest 5 digit number?
  5. What is the unit digit in the product (365 x 659 x 771)?

- Practice:

6. There are 20 people in a party. If every person shakes hand with every other person, what is the total number of handshakes?
7. The unit digit in the sum of (124) to the power of 372 + (124) to the power of 373 is?
8. Find the unit place digit in 71 x 72 x 73 x 74 x 76 x 77 x 78 x 79.
9. Find the remainder → 19^{77} divided by 7?
10. Find the remainder → 4^{4436} divided by 9?



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NUMBER SYSTEM

① 54321A

divisiblity by 9, if Sum of all no is divisible by 9

5+4+3+2+1+A = 15A

15+A divisible by 9

15+3 divisible by 9 = 18

A = 3

② Greatest 6-digit no. = 999999

Divisiblity Rule of 12 : ÷ both 3 & 4

divisiblity by 3 : 9+9+9+9+9+9 = 54

Divisiblity by 4 : Last two digit must be divisible by 4.

999996 //

Sum = 9×5+6 = 51

last 2 digit ÷ 4 ✓

③ (105+206) − 550 ÷ 5^2 + 10

1. 105 + 206 = 311

5^2 = 25

550 ÷ 25 = 22

311 − 22 = 289

289 + 10 = 299 //

365
271
21 5

5
9
1

5×

④ Greatest 5-digit Number : 99999

Smallest 5-digit Number : 10000

Difference : 99999 − 10000 = 89999 //

⑤ Unit digit in the product (365 × 659 × 271)

5×9 = 45 ; 5×1 = 5 ∴ 5

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① Formula : $\frac{n(n-1)}{2}$

Calc : $\frac{20 \times 18}{2} = 190$

190

② $(1246)^{372} + (1246)^{373}$

$4^1 = 4$
$4^2 = 6$
$4^3 = 4$
$4^4 = 6$

$6 + 4 = 10$
unit digit 0

③ 1, 2, 3, 4, 6, 7, 8, 9

$1 \times 2 = 2$
$2 \times 3 = 6$
$6 \times 4 = 24 \rightarrow$ unit digit 4
$4 \times 6 = 24 \rightarrow$ unit digit 4
$4 \times 7 = 28 \rightarrow 8$
$8 \times 8 \times 64 \rightarrow 4$
$4 \times 9 = 36 \rightarrow 6$

6 //

③ $1992 \div 7$

$7 \times 282 = 1974$

$1992 - 1974 = 3$

3 //

⑩ $4^{4436} \div 9$

$4^1 | 9 | = 4$
$4^2 | 9 | = 7$
$4^3 | 9 | = 1$
$4^4 | 9 | = 4$

4436 mod 3 = 2
$4^2 | 9 | = 7$

7 //