

$$9+k \mid 9 \cdot k$$

$$1 \leq k \leq 9$$

$$3 \nmid k \Rightarrow 9+k \mid k \quad \text{?}$$

$$\Rightarrow 3 \mid k$$

k	$9+k$	$9k$
3	12	27
6	15	54
9	18	81

$$n = \sum a_i \cdot 10^i$$

$$s(n) = \sum a_i \quad \{a_i\}$$

$$p(n) = \prod a_i$$

$$\sum a_i \mid \prod a_i$$

□ □ □ □ □ ... □
 0 1 1 1 3 3 1 ...

0 9 1 9
 └──┘

□ ||| □ □ □ → $\binom{21}{9} \approx 294k$
 0 3 3 3

$\binom{20}{9} \approx 168k$

$\frac{5 \cdot 12 \cdot 10^4}{3} \approx \frac{2^9 \cdot 10^9}{3 \cdot 10^5} > \frac{20 \cdot 19 \cdot 18 \cdot \dots}{9 \cdot 8 \cdot 7}$
 ||
 1.7M

$\binom{19}{8} = 75k$

501

11111

9

500

600

900

599

699

999

2000

9000

2999

9999

1000

...

1999

10000

10999

11000

11099

11100

11109

$k \binom{k+8}{8}$

123 | 6

122 | 3

222 | 1

11110

11111