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Jan 9-9:06 AM

Sets → a collection of things

① Natural Number
 $N = \{1, 2, \dots\}$

$n = m \cdot k$ (Product)

#1 $n = 8$
 $m = 4$
 $k = 2$

Factor or Divisor
 $8 = \overline{4} \cdot 2$
 $\frac{8}{4} = 2$
 $2 = 2 \cdot 1$ true!

#2 $n = 7$
 $m = 7$
 $k = 1$

$7 = m \cdot 1$
 $7 = 7 \cdot 1$
 $\frac{7}{7} = 1$
 $1 = 1 \cdot 1$ true!

def: a Prime number is a subset of the natural numbers where the number has only itself and one as factors.

Jan 9-9:14 AM

$P = \{2, 3, 5, 7, 11, 13, 17, 19, 23, \dots\}$

def: If a number is not Prime then it is a Composite number.

* Fundamental Thm. of Arithmetic
 all number can be written as a product of Primes.

8 → Composite
 ② 4 → Composite
 ② ②

$8 = 2 \cdot 2 \cdot 2 = 2^3$
 $24 = 2 \cdot 2 \cdot 2 \cdot 3 = 2^3 \cdot 3$

② 12
 ② 6
 ② ③

Jan 9-9:33 AM

$24 = 2 \cdot 2 \cdot 2 \cdot 3$

③ 8
 ② 4
 ② ②

$24 = 2 \cdot 2 \cdot 2 \cdot 3$

4 6
 (2 · 2) · (2 · 3)

Jan 9-9:43 AM

$96 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3$
 $= 2^5 \cdot 3$

Jan 9-9:44 AM