

Private Kirana

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Teori Bilangan $\in \mathbb{Z}^+$

Tahagi: $a \bmod n = c$ Penbagi
atau bagi a thd n adalih c

$a \bmod n = 0 \rightarrow a$ habis dibagi n
 $n \mid a$

a kelipatan dari n

$a = nk$ ($k = 0, 1, 2, 3, \dots$)

$\times \quad \text{mod } 2 = 0$

$\times \quad \text{Keiparan } 2$

$\times \quad \equiv_{2R}$

Ekivalen

$\times \quad = \{0, 2, 4, \dots\}$

$$1 + 2 = 3$$

$$1 + 2 \equiv 1 - 1$$

$$x \bmod 2 \equiv 0 \quad \} x \text{ habis}$$

$$x \bmod 3 \equiv 0 \quad } x \text{ dibagi}$$

2 dan 3

x keiparan 2 dan 3

$$\overbrace{\text{KPK}(2, 3)} = 6$$

$$(a \stackrel{x}{\pm} b) \bmod n \equiv ((a \bmod n) \stackrel{x}{\pm} (b \bmod n)) \bmod n$$

$$a^b \bmod n \equiv (a \bmod n)^b \bmod n$$

$$1^{2025} \bmod 3 \equiv (1 \bmod 3)^{2025} \bmod 3$$

$$\underline{3 \bmod 2} \equiv (\underline{3 \bmod 2}) * (\underline{\overset{2}{=}} \underset{1}{2} \bmod 2) \bmod 3$$

$$\begin{aligned}
 2^{2027} \mod 3 &\equiv \\
 (2 \cdot 2^{2026}) \mod 3 & \\
 ((2 \mod 3)^2) * (\underbrace{2^{2026}}_{\mod 3}^{\frac{1}{}}) \mod 3 & \\
 2^{2026} \mod 3 &\equiv (2^2)^{1013} \mod 3 \\
 &\equiv 4^{1013} \mod 3 \equiv 1
 \end{aligned}$$

$$(2 \cdot 1) \bmod 3 \equiv 2 \bmod 3$$

$$\equiv 2$$

~~2~~

Jika hari ini hari Kamis, 2^{400} hari lagi hari apa? Sabtu

\rightarrow index based

- (8) Kamis
- (1) Jumat
- (2) Sabtu
- (3) Minggu

(28) \rightarrow Kamis

- | | |
|--------------------------|------------------|
| (4) Senin | <u>(8) Jumat</u> |
| (5) Selasa | |
| (6) Rabu | |
| <u>(7) Kamis</u> | (14) Kamis |
| | (21) Kamis |
| $+1 \rightarrow$ (Jumat) | (29) Jumat |
| $2q \bmod 7 = 1$ | |

0, 3, 14, 21, 28, ...

$$x \bmod 7 = 0 \quad \frac{2^2 \bmod 7 = 1}{}$$

$$2^{400} \bmod 7 = (2^1)^{100} \bmod 7$$

$$16^{100} \bmod 7 = (16 \bmod 7)^{100} \bmod 7$$
$$2^{100} \bmod 7$$

$$(2^t)^{25} \bmod 7 = (16 \bmod 7)^{25} \bmod 7$$
$$2^{25} \bmod 7$$
$$(2 \cdot 2^{24} \bmod 7)$$

$$= ((2 \bmod 7) * (\cancel{(2^{24} \bmod 7)}^1)) \bmod 7$$

$$= 2$$

$$(2^3)^8 \bmod 7$$

$$\cancel{8^8} \bmod 7 = \underline{1^6}$$

Logika Matematika

Proposisi

Benar / true $\Rightarrow 1$ }
salah / false $\Rightarrow 0$ }
bool

$$1 + 1 = 2 \quad (\text{Benar})$$

Satu hari 24 jam
(Benar)

$$3 - 2 = 0 \quad (\text{salah})$$

$$2 < 3 \quad (\text{Benar})$$

$$1 \neq 3 \quad (\text{Benar})$$

$$1 > 3 \quad (\text{salah})$$

Besok hari Selasa (Bkn Proposi)

Jika hari ini adalah hari
senin, maka besok selasa (Benar)

If () { Prop (bool)}

→ dijalankan jika true

} else {

→ dijalankan jika false

}

$\text{if } f_1(\dots) \{$

$\text{if } f_2(\dots) \{ \}$

}



$\text{if } (P \wedge Q) \{$

}

...

else e {
 if c ..) { }
}

else if c ..) { }
 { }

* Kongjungsi (DAN, AND) \rightarrow (•) (Λ)

P	q	P and q
1	1	1
0	1	0
1	0	0
0	0	0

Salah salah salah
semua

* Disjungsi (ATAU, OR) \rightarrow (||) (V)

Salu benar semua
benar

P	Q	P or Q
1	1	1
0	1	1
1	0	1
0	0	0

Pilih aku atau dia

1 1

Disjungsi

Eksklusif

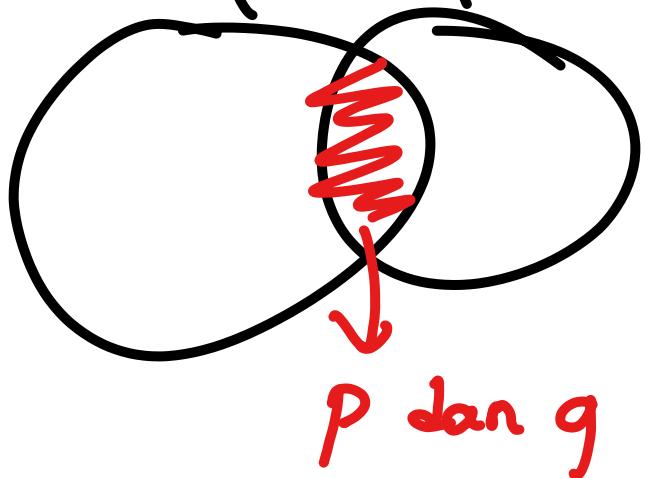
(XOR) $\Rightarrow (\wedge)$



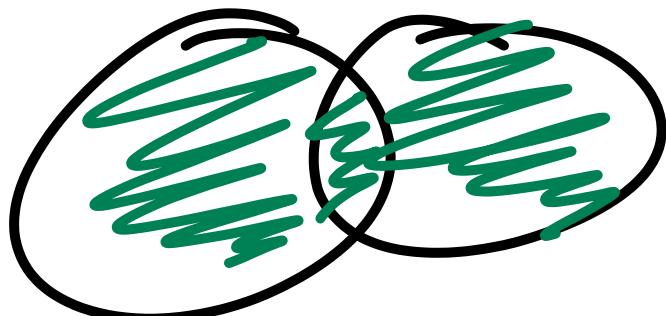
P	Q	P xor Q
1	0	1
0	1	1
1	1	0
0	0	0

Pilih salah satu
di antara P atau Q

* AND \Rightarrow IPSAN $\Rightarrow P \cap q$

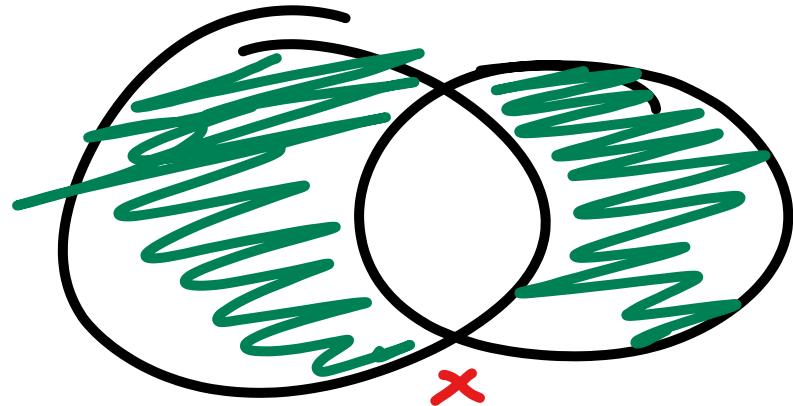


* OR \Rightarrow GABUNGAN $\Rightarrow P \cup q$
P , q , P & q



Bilangan habis dibagi 2 atau 3
4 (OKE)
3 (OKE)
6 (OKE)

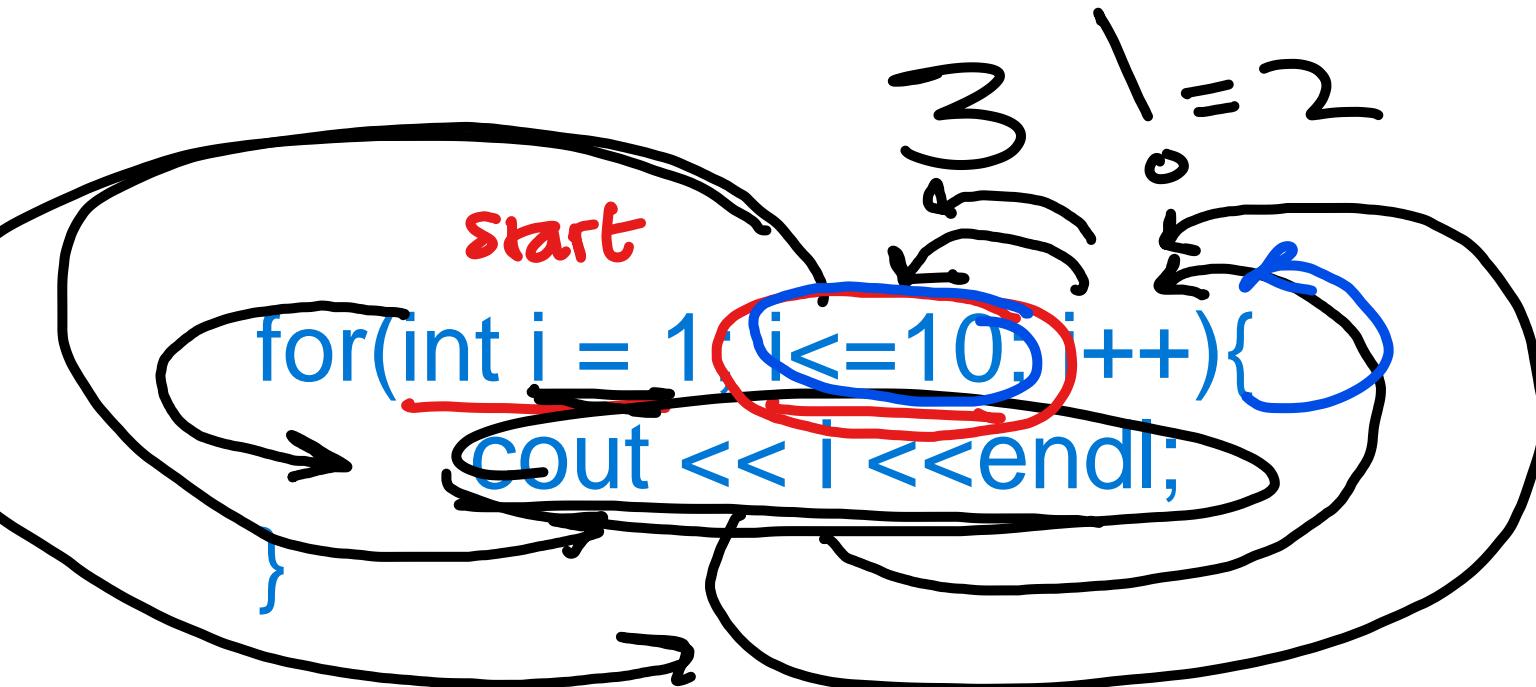
$A \oplus P \oplus Q \Rightarrow (P \text{ and } \neg Q) \text{ or } (Q \text{ and } \neg P)$



$\text{NOT}(\text{True}) = \underline{\text{False}}$

$\text{NOT}(\text{False}) = \underline{\text{True}}$

$\neg ! \neq$



out

$i = 1 \Rightarrow \text{cout } i \rightarrow 1$

$i = 2 \Rightarrow \text{cout } i \rightarrow 2$

$i = 3 \Rightarrow$

\vdots

$i = 10 \Rightarrow \text{cout } i \rightarrow 10$

$i = 11 \Rightarrow \text{False}$

$\rightarrow \text{stop}$

sum = 0;

for(int i = 1; i<=10; i++){

 sum += i;

$$1 + 2 + 3 + \dots + N = \frac{N * (N+1)}{2}$$

sum = 0

i = 1 → sum += 1 → sum = 1

i = 2 → sum += 2 → sum = 3

i = 3 → sum += 3 → sum = 6

⋮

sum = 0

i = 1

i = 2

i = 3

⋮

i = 10

sum = ~~0 + 1 + 2 + 3 + ... + 10~~

$$= \frac{\cancel{10}^5 * (11)}{\cancel{2}} = 55$$

Seniap i ada 1 j
 ↓
 *

Total Bimbing =

Banyak i * 1

$$\frac{1}{\text{makan}} * \frac{2}{\text{minum}} = 8$$

Ada 4 menu makanan ada 2 menu minuman

ada berapa banyak pasangan makanan dan minuman?

Makan = { sate, bakso, sop, sop }

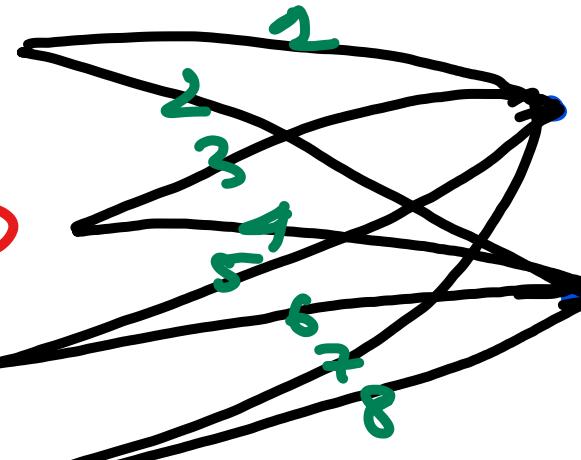
minuman = { air, teh }

Sate

Bakso

soto

sop



air

teh

Sehat

makanan

bisa dipasang
kan

ke 2
minuman

