

Mata Kuliah : Matematika Diskrit I
Kode Mata Kuliah : KKT14143
Jumlah SKS : 3 SKS
Nama Dosen : Suprihanto
Minggu ke : 6
Tanggal : 20 Oktober 2015
Jadwal : Selasa (07.00 – 08.40)

Latihan Laws Of Equivalence

Minggu ini dibahas latihan untuk mengasah kemampuan mahasiswa tentang laws of Equivalence. Soal terdapat di Halaman 55 Discrete Mathematics and Its Applications, Seventh Edition : Kenneth H. Rosen.

7. Carilah negasi dari pernyataan – pernyataan di bawah dengan menggunakan aturan De Morgan.

- a. Jan is rich and happy.

Jawab

Misalkan

p = Jan is rich

q = Jan is happy

$p \wedge q$ = Jan is rich and happy

$\neg(p \wedge q) \equiv \neg p \vee \neg q$

$\neg p$ = Jan is not rich

$\neg q$ = Jan is not happy

$\neg p \vee \neg q$ = Jan is not rich or is not happy

Jadi negasi dari pernyataan 'Jan is rich and happy' adalah 'Jan is not rich or is not happy'

- b. Carlos will bicycle or run tomorrow.

Jawab

Misalkan

p = Carlos will bicycle tomorrow

q = Carlos will run tomorrow

$p \vee q$ = Carlos will bicycle or run tomorrow

$\neg(p \vee q) \equiv \neg p \wedge \neg q$

$\neg p$ = Carlos will not bicycle tomorrow

$\neg q$ = Carlos will not run tomorrow

$\neg p \wedge \neg q$ = Carlos will not bicycle and will not run tomorrow

Jadi negasi dari pernyataan 'Carlos will bicycle or run tomorrow' adalah 'Carlos will not bicycle and will not run tomorrow'

32. Tunjukkan bahwa $(p \wedge q) \rightarrow r$ dan $(p \rightarrow r) \wedge (q \rightarrow r)$ bukan pernyataan logika yang setara

p	q	r	$p \wedge q$	$(p \wedge q) \rightarrow r$	$p \rightarrow r$	$q \rightarrow r$	$(p \rightarrow r) \wedge (q \rightarrow r)$
T	T	T	T	T	T	T	T
T	T	F	T	F	F	F	F
T	F	T	F	T	T	T	T
T	F	F	F	T	F	T	F
F	T	T	F	T	T	T	T
F	T	F	F	T	T	F	F
F	F	T	F	T	T	T	T
F	F	F	F	T	T	T	T

$(p \wedge q) \rightarrow r$	$\equiv/\equiv$	$(p \rightarrow r) \wedge (q \rightarrow r)$
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