

MATAKULIAH : Matematika Diskrit	KELAS : A, C, D
Dosen : Eko Wahyu Tyas D	Sifat : TERBUKA 1 lembar A4
Durasi Waktu Pelaksanaan : 60 Menit	Hari/Tanggal : Jum'at, 11/12/2015

- The inhabitants of Joy Island consist of knights and knaves. Knights always tell the truth while knaves always lie. You encounter two people A and B. Determine if possible, what A and B if they address you in the ways described:
A says "*The two of us are both knight*", and
B says "*A is a knave.*"
(20 Points)
- Show that $\sim p \leftrightarrow \sim q$ is logically equivalent with $p \leftrightarrow q$ by using Table of Equivalence Laws.
(20 Points)
- Determine whether 2 is an element of each of the following sets.
 - $\{x \in \mathbf{R} | x \text{ is an integer greater than } 1\}$
 - $\{\{2\}, \{\{2\}\}\}$
 - $\{\{\{2\}\}\}$**(15 Points)**
- Determine whether $A \times B \times C$ is equivalent to $(A \times B) \times C$ and explain why.
(20 Point)
- Prove that if x and y are real numbers, then $\max(x, y) + \min(x, y) = x + y$.
(Hint: Use a proof by cases, with the two cases corresponding to $x \geq y$ and $x < y$, respectively).
(25 Points)