

Math 2001 - Assignment 1

Due September 2, 2016

- (1) Are the following true for $A = \{1, 2, \{3, 4\}\}$ or not?
(a) $\{3, 4\} \in A$ (b) $\{3, 4\} \subseteq A$ (c) $\emptyset \in A$ (d) $|A^2| = 16$.
- (2) [1, Section 1.1]: Exercises 2,4,16
- (3) [1, Section 1.1]: Exercises 20,24,26
- (4) [1, Section 1.1]: Exercises 30,38
- (5) Let $A = \{a, b, c\}$ and $B = \{0, 1\}$. Enumerate:
(a) $B \times A$ (b) $A \times \emptyset$ (c) B^3
- (6) Sketch the following Cartesian products in the plane \mathbb{R}^2 . Be careful to denote whether the boundaries of your figures are contained in the sets or not.
(a) $\{0, 1, 2\} \times \{1, 2\}$ (b) $[0, 2] \times (1, 2]$ (b) $\mathbb{R} \times \mathbb{Z}$

REFERENCES

- [1] Richard Hammack. The Book of Proof. Creative Commons, 2nd edition, 2013.
Available for free: <http://www.people.vcu.edu/~rhammack/BookOfProof/>