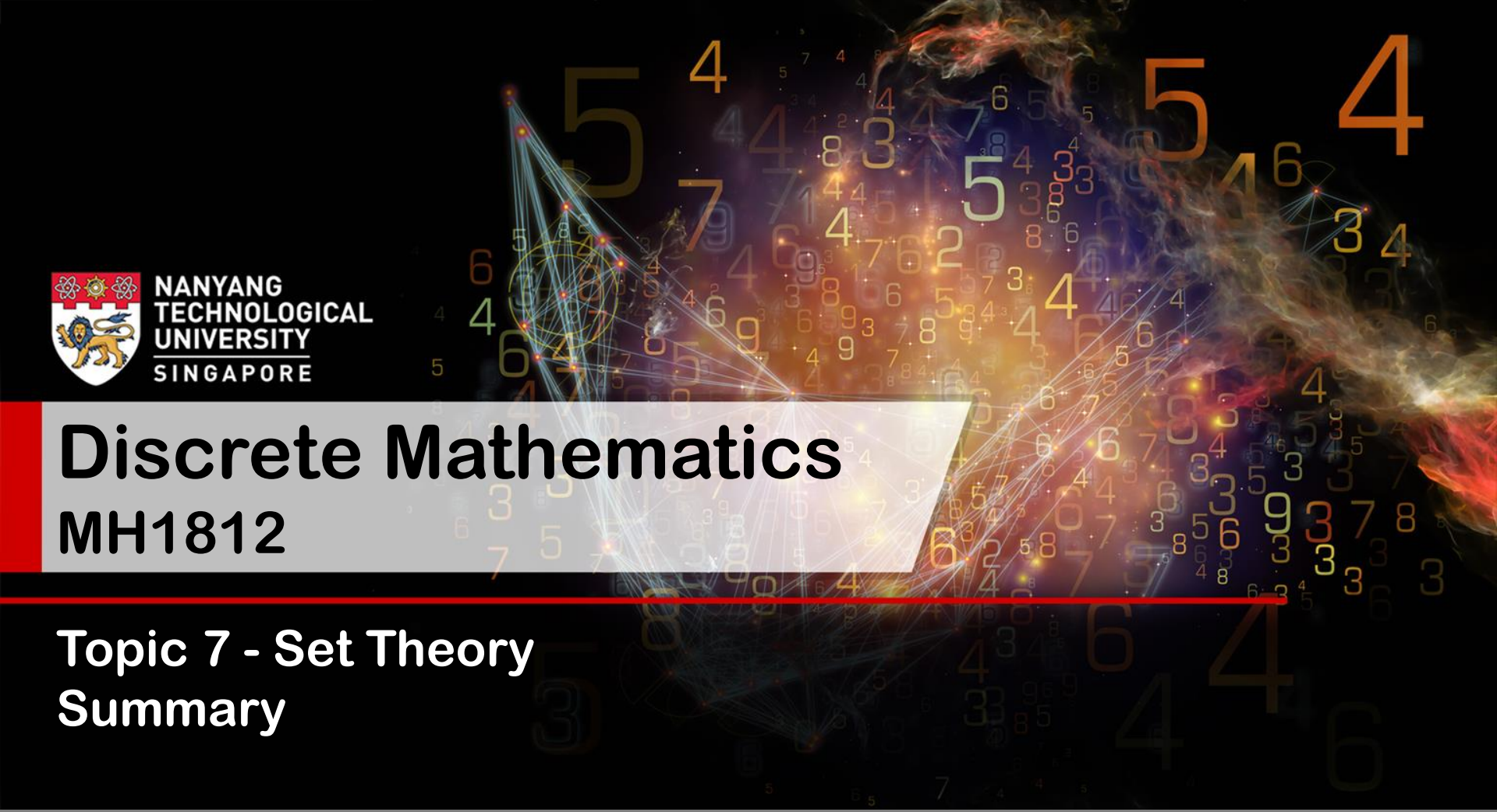

NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

Discrete Mathematics

MH1812

Topic 7 - Set Theory Summary

Example

Set $A = \{1,2,3\}$ **and** $B = \{2\}$.

Find:

- $A \cup B$
- $A \cap B$
- $A - B$
- $B - A$
- $A \times B$
- $B \times A$

Example

Prove the set identity $(A - B) \cap (C - B) = (A \cap C) - B$.

A	B	C	$A-B$	$C-B$	$(A-B)\cap(C-B)$	$A\cap C$	$(A\cap C)-B$
1	1	1					
1	1	0					
1	0	1					
1	0	0					
0	1	1					
0	1	0					
0	0	1					
0	0	0					

Example

Prove the set identity $(A - B) \cap (C - B) = (A \cap C) - B$.

Example

Prove the set identity $(A - B) \cap (C - B) = (A \cap C) - B$.

Example

Show that $(A \times B) \cup (B \times C) \subseteq (A \cup B) \times (B \cup C)$.