

January 26, 2015

$\mathbb{N}$  ?

$A = \{x \in \mathbb{N} \mid x \leq 8\}$

Jan 26-9:57 AM

$A = \{x \in \mathbb{N} \mid x \leq 8\}$   
 $= \{1, 2, 3, 4, 5, 6, 7, 8\}$

$B = \{x \in \mathbb{Z} \mid x > -5\}$   
 $= \{-4, -3, -2, \dots\}$

$A \cap B = \{1, 2, 3, 4, 5, 6, 7, 8\}$   
 $= \{x \in \mathbb{N} \mid x \leq 8\}$   
 $= \{x \in \mathbb{Z} \mid 1 \leq x \leq 8\}$

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$\{x \mid x < 5 \text{ or } x \leq 10\}$

$(-\infty, 5) \cup (-\infty, 10]$

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$A \cap B \subset C \rightarrow \emptyset$

$[1, 8]$

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$(-\infty, \infty)$   
 $\mathbb{R}$

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Relation  
 $D = \{ (2, 5), (4, 5), (6, 7) \}$

\* Function  
 \* all 1<sup>st</sup> entries are "mapped" or connected to a specific 2<sup>nd</sup> entry.

map of D

$x$	$y$	
2	→	3
4	→	5
6	→	7

} Rule  $x + 1$

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C

$x$	$y$
2	→ 5
3	→ 5
4	→ 5

a Function!

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$x$	$y$
2	→ 5
2	→ 7
2	→ 8

\* Not a function

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$x$	$y$
2	→ 5
* 3	→ 6
	→ 7
4	→ 8

Not a function

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Test ① for a function

- \* You have ordered pairs
- \* Repeating  $x$ 's?
  - yes or no
  - Are the  $y$ 's the same?
    - yes or no
    - yes → a function
    - no → Not a function

$(2, 4), (3, 8), (2, 6)$   
Not a function

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