

**In-Class Worksheet**  
**Discrete Math & Functional Programming— CSCI 054— Fall 2024**  
**Instructor: Osborn**

Let the universal set be  $U = \mathbb{Z}^+$ ,  $A = \{n : n \geq 6\}$ , and  $B = \{1, 2, 4, 5, 7, 8\}$ .

What are:

- $A^C$
  
  
  
  
  
  
  
- $A \cap B$
  
  
  
  
  
  
  
- $A \cup B$
  
  
  
  
  
  
  
- $|B|$

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Are either  $A$  or  $B$  a subset of the other?

Give an example of a proper superset of  $B$ .

How would you define the function for “and”?

How would you define the function that takes two real numbers and returns their average?

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What are the domain, co-domain, and range for:

- $f : \mathbb{Z} \rightarrow \mathbb{Z}$ , where  $f(x) = 2x$ ?

- $g : \mathbb{R} \rightarrow \mathbb{R}$ , where  $g(x) = \frac{1}{x}$ ?